



NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

**NATURAL GAS AND ENERGY SECURITY IN TRINIDAD
AND TOBAGO AND THEIR IMPACT ON U.S. ENERGY
POLICY AND CARIBBEAN STABILITY**

by

Jason R. Kelshall

December 2005

Thesis Co-Advisors:

Robert Mc Nab
Maria Rasmussen

Approved for public release; distribution is unlimited

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE			<i>Form Approved OMB No. 0704-0188</i>	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE December 2005	3. REPORT TYPE AND DATES COVERED Master's Thesis	
4. TITLE AND SUBTITLE: Natural Gas and Energy Security in Trinidad and Tobago, and Their Impact on U.S. Energy Security and Stability in the Caribbean			5. FUNDING NUMBERS	
6. AUTHOR(S) Jason R. Kelshall				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING /MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense, the U.S. Government or the Government of Trinidad and Tobago.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited			12b. DISTRIBUTION CODE	
13. ABSTRACT (maximum 200 words) The current focus of the Global War on terror in the Middle East and in increased surveillance on U.S. borders has left a third border, the Caribbean, open to terrorist infiltration and attack. Large scale U.S. direct investment in the industrialized island nation of Trinidad and Tobago relative to the other islands in the region and Latin America, and the United State's current dependence on it for the majority of its liquefied natural gas imports, makes it an attractive target for terror. While there has been reasonable research on the effects of a domestic terrorist attack on the American economy, there has been little research on the effects of an attack on one of the United States critical energy sources. This thesis will examine this subject and analyze the possibility of such an attack and the projected dire consequences for Trinidad and Tobago, the region and U.S. energy security initiatives. This thesis will also attempt to focus on some policy implications for improved security in this area.				
14. SUBJECT TERMS: National Security, Energy Security, Stability, Diplomacy, Terrorism, Security Operations			15. NUMBER OF PAGES 121	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT	

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. Z39-18

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release; distribution is unlimited

**NATURAL GAS AND ENERGY SECURITY IN TRINIDAD AND TOBAGO,
AND THEIR IMPACT ON U.S. ENERGY SECURITY AND STABILITY IN THE
CARIBBEAN**

Jason R. Kelshall
Lieutenant (N) Trinidad and Tobago Defence Force
B.B.A., University of New Brunswick, 2000

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN NATIONAL SECURITY AFFAIRS

from the

**NAVAL POSTGRADUATE SCHOOL
December 2005**

Author: Jason R. Kelshall

Approved by: Robert Mc Nab
Thesis Co-Advisor

Maria Rasmussen
Thesis Co- Advisor

Douglas Porch
Chairman, Department of National Security Affairs

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

The current focus of the Global War on terror in the Middle East and in increased surveillance on U.S. borders has left a third border, the Caribbean, open to terrorist infiltration and attack. Large scale U.S. direct investment in the industrialized island nation of Trinidad and Tobago relative to the other islands in the region and Latin America, and the U.S. current dependence on it for the majority of its liquefied natural gas imports, makes it an attractive target for terror. While there has been reasonable research on the effects of a domestic terrorist attack on the American economy, there has been little research on the effects of an attack on one of the United State's critical energy sources. This thesis will examine this subject and analyze the possibility of such an attack and the projected dire consequences for Trinidad and Tobago, the region and U.S. energy security initiatives. This thesis will also attempt to focus on some policy implications for improved security in this area.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

I.	INTRODUCTION.....	1
A.	BACKGROUND	1
B.	PURPOSE.....	5
C.	OVERVIEW	5
II.	THE IMPORTANCE AND VULNERABILITY OF TRINIDAD AND TOBAGO'S ENERGY SECTOR.....	7
A.	PROFILE ON THE ENERGY INDUSTRY OF TRINIDAD AND TOBAGO	7
B.	VULNERABILITY OF LOCAL ENERGY INFRASTRUCTURE.....	12
C.	CRITICAL AREAS.....	13
D.	PLATFORM SECURITY	17
E.	METHODS OF ATTACK	19
III.	THREATS TO TRINIDAD AND TOBAGO'S ENERGY SECTOR	23
A.	THE LOCAL CRIME SITUATION.....	23
B.	TERRORIST THREAT	28
C.	THE LOCAL SECURITY FORCES AVAILABLE TO SECURE THE ENERGY SECTOR	33
IV.	THE CONSEQUENCES OF AN ATTACK ON THE LOCAL ENERGY SECTOR	39
A.	THE LOCAL COSTS OF AN ATTACK	39
B.	REGIONAL ECONOMIC LINKAGES.....	46
C.	REGIONAL SECURITY NETWORKS	51
D.	STABILITY AND RECONSTRUCTION EFFORTS	54
E.	FUTURE REGIONAL SECURITY INITIATIVES	56
F.	THE IMPACT OF AN ATTACK ON THE U.S. ECONOMY	59
G.	THE PRESENT U.S. GAS MARKET	60
H.	IMPACT ON THE U.S. ECONOMY	63
V.	THE EFFECT OF UNITED STATES FOREIGN POLICY ON TRINIDAD AND TOBAGO'S STABILITY	71
A.	THE EFFECTS OF U.S. COUNTER-DRUG POLICY ON TRINIDAD AND TOBAGO	72
B.	THE EFFECTS OF U.S. COUNTER-TERROR POLICY ON TRINIDAD AND TOBAGO	75
C.	THE INTERNATIONAL CRIMINAL COURT CONTROVERSY	78
VI.	RECOMMENDATIONS.....	87
VII.	CONCLUSION	91
	BIBLIOGRAPHY	93

APPENDIX A. ATTACKS ON THE IRAQI PETROLEUM INDUSTRY	99
APPENDIX B. INTERNATIONAL ATTACKS ON ENERGY INFRASTRUCTURE (2000 TO 2005).....	103
INITIAL DISTRIBUTION LIST	105

LIST OF FIGURES

Figure 1.	Showing the Vulnerability of Critical Infrastructure in Trinidad and Tobago	16
Figure 2.	Natural Gas's Role in the U.S. Economy (From: Sergey Vasnetov, and Zoya Kovenya, "Higher Natural Gas Prices will Decrease Profitability of U.S. Petchem Industry," Oil & Gas Journal, April 28, 2003, p. 52)	60
Figure 3.	U.S. Net Imports of Natural Gas 1970-2025 (trillion cubic feet) (From: The U.S. Department of Energy)	61

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF TABLES

Table 1.	Petroleum Reserves as of January 1, 2004.....	7
Table 2.	Crude Oil and Natural Gas Production, 2000 – 2004	8
Table 3.	Petrochemicals Production and Exports, 2000-04.....	8
Table 4.	Breakdown of Oil and Gas Companies Operating Offshore in Trinidad and Tobago (From: Source: South chamber of Industry and Commerce of Trinidad and Tobago Official Website. Available from http://www.southchamber.org/initiatives/initiative.aspx?CategoryID=1400&id=2928 , Last accessed November 20, 2005.	9
Table 5.	Local Threat Scenarios	20
Table 6.	The Number of Murders in Trinidad and Tobago and Trinidad and Tobago's Ranking in Murders per 1000 Persons Globally (From: Homicide Bureau Trinidad and Tobago Police. Data for Extrapolated Murder Rate Ranking Obtained from Nation Master.com. Available from. http://www.nationmaster.com/graph-T/cr_i_mur_cap . Last accessed October 15, 2005.....	25
Table 7.	Breakdown of Expected Loss of a Major Platform	40
Table 8.	Imports of LNG into the U.S. 2003 by Source, in Billions of Cubic meters (From: Source BP Statistical Review, Taken from Oil and Gas Journal /January 24, 2005.....	63
Table 9.	Shipping Prices to U.S. LNG Terminals (dollar per Mmbtu) (From: EIA Global LNG Study except Gas Supply (Taken from Oil & Gas Journal, May 17, 2004, p. 57).....	64
Table 10.	Sectoral Price Impacts of Higher Natural Gas Prices (From: Inter Industry Economic Research Fund (INFORUM) Estimates Using LIFT Model Simulation).....	66
Table 11.	Sectoral Employment Impacts of Higher Natural Gas Prices (From: INFORUM Estimates Using LIFT Simulation).....	67
Table 12.	The Disposition in Relation to Article 98 of the Latin American and Caribbean Countries (From: United States, Bureau of Resource Management)	79
Table 13.	U.S. Foreign Assistance to the Caribbean FY 2005 Estimates and FY 2006 Requests (From: Figures Drawn from Congressional Budget Justification, Foreign Operations, Summary Tables Fiscal Year 2006. U.S. Department of State).....	80
Table 14.	U.S. Aid to Trinidad and Tobago Prior to Article 98 and After (From: Center for International Policy Online)	82
Table 15.	Equipment and Training Required to Secure the Maritime Domain of Trinidad and Tobago.....	84

THIS PAGE INTENTIONALLY LEFT BLANK

ACKNOWLEDGMENTS

There are many persons and organizations who contributed significantly to the development and completion of this study. The Naval Postgraduate School and the faculty in the National Security Affairs Department provided me with the greatest period of learning in my life, and thoroughly equipped me with the tools to undertake this study. I would also like to thank Karen Guttieri and Jeanne Giraldo of the National Security Affairs Department in particular both of whom were instrumental in helping me craft this document. The staff and research assistants in the Dudley Knox Library, led by Greta Marlatt also helped me a great deal, especially Zowie who helped me personally on countless occasions with equipment breakdowns and always in a patient, kind, efficient, and pleasant manner.

I would also like to thank Professor Robert Mc Nab of the Defense Resources Management Institute at NPS, who was the inspiration behind the topic for this thesis, thank you for all your help Sir. You were ever ready and ever online to provide guidance, and set me straight. I would also like to thank the other mentor who I spent the most classroom time with and who taught me the most at NPS, Maria Rasmussen. Thank you ma'am for guiding me step by step through this process. Thank you for your laser focus and careful attention to detail, I needed it and am very grateful for all your help and the knowledge you provided during this journey.

To my brothers in the 689 B cohort and friends who kept me sane, kept me laughing and provided moral support in many ways; Captain Eduardo Ulery, Major Ariel Caculitan, and Lieutenant Commander Eric Ramos and Second Lieutenant Murat Celik and your families, I also say thank you. Finally, to my wife Gina who shouldered many of my responsibilities during this period, assisted in keeping my thoughts clear and in providing balance to my time at NPS while completing her own studies. Thank you, I could not have done it without you. These acknowledgements would not be complete without thanking God for my health, strength, and all the blessings he has bestowed on me this year.

THIS PAGE INTENTIONALLY LEFT BLANK

I. INTRODUCTION

A. BACKGROUND

Since the tragic events of September 11th, 2001 security and intelligence services worldwide have attempted to ascertain the strategy, capability, links and potential targets of transnational terrorists. This effort has continued in concert with the hardening of potential targets and the hunt for and prosecution of terrorists by law enforcement and military units supported by multilateral law enforcement and security cooperation.

A commonly understood strategy of Al Qaeda affiliated groups is the targeting of economic targets, and specifically, oil and gas facilities. Al Qaeda communiqués have made specific appeals for all “mujahideen” to attack energy targets in countries in which Western oil companies operate.¹ On September 6, 2005, Saudi security forces, in conjunction with the capture of Al Qaeda affiliated militants at Ad Dammam, seized plans for the attack on an array of oil and gas targets.² Indeed the frequency and severity of insurgent attacks on Iraq’s energy infrastructure, illustrates the application of this strategy and its importance in the overall insurgent campaign in denying resources to the fledgling Iraqi Government. In response to the perceived increase in threat, many large oil and gas corporations have increased security at their facilities.³

If attacking energy targets is an integral part of linked militant Islamic group’s strategy, then the country of Trinidad and Tobago may be a reasonably accessible and vulnerable target for the application of this strategy.⁴ The local energy infrastructure is

¹ Tamara Makarenko “Terrorist Threat to Energy Infrastructure Increases,” *Jane’s Intelligence Review*, May 21, 2003.

² Adnan Malik, “Saudi Forces Overrun Militants Villa,” Associated Press, 6 September, 2005. Available from World News http://customwire.ap.org/dynamic/stories/S/SAUDI_Clash?SITE=KING&SECTION=HOME&TEMP, Last accessed October 8, 2005.

³ Jimmy Burns & Thomas Catan “Oil Groups Face Rise in Threats to Security,” *Financial Times*, October 5, 2005.

⁴ “The current focus on energy security remains lacking and limited, with a rather outdated reliance on the more traditional perspective of concentrating on the risks posed by instability and insecurity in the Middle Eastern oil producing region.” Richard Giragosian, “Energy Security in East Asia,” Institute for the Analysis of Global Security Online, August 13, 2004. Available from <http://www.iags.org/n0813042.htm>, Last accessed September 28, 2005.

vulnerable, and is tied to the economy of the Caribbean region, and Trinidad and Tobago has recently been described as the energy and financial capital of the Caribbean.⁵ The local energy sector accounts for forty percent of the island's economy and exports from Trinidad and Tobago account for 84% of the region's inter-island trade. Revenue from Trinidad and Tobago's gas rents have also underwritten stability and economic development in the smaller islands through loans, grants, subsidies, and financial assistance. More important, exports from it form a key part of the energy security strategy of the United States and it presently exports 88% of the Liquefied Natural Gas (LNG) used in the United States.

While a significant or sustained terrorist attack on the Trinidad and Tobago's energy sector would be potentially devastating for Trinidad and Tobago and the local region, the supply disruption would likely have a significant impact on the U.S. economy because of Trinidad's key energy supply role. It is this three-fold effect, which makes it an attractive target because it provides terrorists with a series of large scale national, and regional economic disruptions, which will also be felt in the ultimate target: the United States. The utility of this approach for transnational terrorist groups is that this can be achieved by targeting a relatively small, lightly defended target, in a little known island.

What is the possibility of terrorist activity taking place in Trinidad and Tobago? In July 1990, Islamic Militants known as the Jamaat al Muslimeen (JAM), attempted to establish the first Islamic state in the Western Hemisphere, in Trinidad and Tobago, by armed revolution. Twenty-six people died and hundreds were wounded in the bombing, shooting and hostage crisis that played out in the country's Parliamentary Chamber and state television station. Security forces eventually took control and forced the surrender of the militants some six days after the attempt was initiated. While the Government was able to resolve the immediate crisis by providing an amnesty that freed the militants involved, the threat posed by radical Islamic elements continues until this day.

⁵ Jwarla Rambarran, "Financial Crises in T&T: Can They Happen Again?" Trinidad Express, March 16, 2005. Available from <http://www.trinidadexpress.com/index.pl/article?id=67223206>, Last accessed September 28, 2005. & Editorial Trinidad Express Online, "Caribbean Energy Initiatives," November 17, 2004: Available from <http://www.trinidadexpress.com/index.pl/article?id=4666924>, Last accessed September 28, 2005.

Terrorist activity in the Caribbean, while generally perceived not to be of strategic importance to the United States has increased within the last decade.⁶ Terrorist groups with confirmed links to the Al Qaeda network are believed to operate in Venezuela and Margarita.⁷ Venezuela lies just seven miles from Trinidad and Tobago, and this proximity makes it feasible that an attack could be planned and initiated from these cells.

In March 2003 U.S. Federal investigators announced publicly that they were searching for Adnan El Shukri Jumah, an American man, named by a top Al Qaeda operative as a trained terrorist and on the FBI's most wanted terrorist list. El Shukri Jumah had returned home to visit relatives in Georgetown Guyana during Ramadan 2001, but authorities lost track of Jumah in Trinidad and Tobago on his way back to the United States. It was believed that he was traveling on a false Trinidad and Tobago passport.⁸ In the same month, British and U.S. oil companies received threats targeting their facilities in Trinidad and Tobago. A letter was also published in a local newspaper by an unknown group that made threats relating to the possibility of a chemical attack against citizens and a threat to poison the nation's water supply. To date no one has been arrested for these threats.

In 2005, four low-grade improvised explosive devices, exploded in the business districts of Trinidad and Tobago's capital, Port of Spain, resulting in the injury of 34 people.⁹ Suspicions were immediately cast on the Jamaat al Muslimeen and security forces from Trinidad and Tobago Army/Special Anti-Crime Unit raided the compound of the Jamaat Al Muslimeen three hours after the October explosion. Four members of the Jamaat Al Muslimeen were detained for questioning including Jamaat leader Abu Bakr. All of the persons detained for questioning have since been released, and the search for the individuals responsible for these attacks continues.

⁶ British Scotland Yard monitors Afro-Caribbean mosques as one of its top priorities of its anti-terrorist, intelligence gathering operations. Jason Burke, *Al Qaeda: The True Story of Radical Islam*. London: I. B. Tauris, 2004, p. 284.

⁷ LaVerle Berry, et al., "A Global Overview of Narcotics Terrorist and other Extremist Groups.," Washington: Library of Congress, 2002.

⁸ FBI Official Website. Available from <http://www.fbi.gov/terrorinfo/elshukrijumah.htm>, Last accessed November 22, 2005.

⁹ The devices exploded on July 11, August 10, September 10 and October 14, 2005.

Several other affiliated mosques were raided later on November 10th 2005, in an apparent government crackdown. During this later raid, weapons, ammunition and grenades were seized at the group's headquarters at Mucurapo, but no explosive materials or bombing suspects were found, or charged. It must be noted that Trinidad and Tobago also hosts a number of other radical Islamist groups apart from the Jamaat Al Muslimeen.¹⁰ If the Jamaat is not behind the recent spate of bombings in Port of Spain, then the other alternative is more alarming, that is, the mobilization of another group that has the capability and the willingness to use explosives and arms to disrupt the security, stability and economy of Trinidad and Tobago.

What these incidents suggest is that there is a wide scale of confirmed and suspected terrorist activity taking place in and around Trinidad and Tobago. The inability of the local security forces to date to prevent, or arrest, the perpetrators of recent activity also alludes to the ease with which local or transnational groups could possibly facilitate an attack on the energy sector, in keeping with the terrorist strategy of economic center of gravity attack.

This is important because both the U.S. State Department and U.S. Energy Secretary have consistently described energy shipments from Trinidad and Tobago as key to the United States' energy security, economy and ultimate security.¹¹ However, despite the apparent increase in terrorist activity and the dependence of the United States on LNG supplies from Trinidad and Tobago, the United States State Department has steadfastly adhered to its policy to suspend all security aid and training assistance to Trinidad and Tobago. In August 2003 the United States curtailed aid to Trinidad and Tobago to place pressure on the islands' government to support the exemption of the United States military from prosecution by the International Criminal Court. As of October 2005, the

¹⁰ 11% of the population in Trinidad is Muslim. "Three Muslim fundamentalist groups in this country are kept under constant surveillance, the Trinidad and Tobago Defence Force yesterday informed high-ranking military officials from over a dozen countries. The groups named were the Jamaat-al-Muslimeen, the Waajihatul Islaamiyyah, based in Princes Town, and the Jamaat al Murabiteen, which, the Express was informed, operates from a Central location." Ucill Cambridge, "Muslim watch," Express On line March 92004. Available from http://www.trinidadexpress.com/index.pl/article_news?id=17332822, Last accessed November 21, 2005.

¹¹ Petroleum World "U.S. Energy Rep: T&T LNG Key," December 17, 2004. Available from Petroleumworld.com <http://www.petroleumworld.com/storytt04121708.htm>, Last Accessed June 15, 2005.

United States offered no security assistance or anti-terrorism funding to Trinidad and Tobago.¹² This policy, does not appear beneficial to either party in helping to secure vital bilateral energy and security interests, yet it still is enforced. Curiously, despite this inconsistency and the importance of this issue to both nations, and the region's economic security and stability, there is scant attention in the international relations literature on this issue.

B. PURPOSE

The purpose of this thesis is to address the gap in the literature with regard to this issue and to illustrate the catastrophic effects a significant terrorist attack on Trinidad and Tobago's energy sector will have on the economic and political stability of Trinidad and Tobago. Because of Trinidad and Tobago's dominant economic role in the region, the thesis will also discuss the impact of an attack on Trinidad's ability to continue to contribute to regional stability and development. I will also show the possible debilitating effects such an attack will have on the U.S. economy, and the implications for security in the United States as a result of instability in the "backyard" of the United States. I will also provide recommendations to prevent a significant terrorist attack on the energy sector in Trinidad and Tobago to mitigate this three-fold threat. Lastly, I will provide recommendations to adjust the conflicting bilateral foreign policy related to terrorism, drug trafficking and energy security that in combination, inadvertently contributes to instability in the "Third Border" as the Bush Administration has aptly named this area.¹³

C. OVERVIEW

The remainder of this thesis is laid out as follows. In Chapter II I provide an overview of Trinidad and Tobago's energy industry. I will also examine the vulnerability of the local energy asset infrastructure in Trinidad and Tobago, and develop local attack

¹² U.S. Department of State Congressional Budget Justification, Foreign Operations Report, Fiscal Year 2006.

¹³ In order to better focus the U.S.-Caribbean relationship and work with our partners on a number of capacity building tasks, the Bush Administration has developed a "Third Border Initiative." "We are also committed to deepening our cooperation throughout the hemisphere in fighting the spread of HIV/AIDS, responding to natural disasters, and making sure the benefits of globalization are felt in even the smallest economies. These goals are at the heart of the "Third Border" initiative we have launched with the countries of the Caribbean." President George W. Bush. President of the United States: The White House, Washington D.C. April 21, 2001.

scenarios that could potentially threaten it, based on recent terrorist activity in the global energy sector. In Chapter III I will look at the threats to the local energy industry with specific focus on crime and terrorism. I will also examine the local capacity and capability of Trinidad and Tobago's maritime security services to secure this vital sector.

In Chapter IV, I provide an estimate of the potential costs of a significant terrorist attack on the economy of Trinidad and Tobago. I will also look at Trinidad and Tobago's economic and military role in the region in facilitating and maintaining security and stability and the possible impacts an attack could have on the region if these military and economic services are significantly reduced or disrupted. The last section of this chapter will focus on the impact of an attack on the U.S. economy.

In Chapter V, I will examine the existing bilateral foreign policy and its effects on the general security and stability of Trinidad and Tobago and provide recommendations to prevent and mitigate the effects of a terrorist attack on the energy sector. I will also provide recommendations for adjustments to ameliorate the negative consequences of conflicting U.S. counter-drug, counter-terror and energy security policy. I conclude the chapter with recommendations to facilitate stability in the region and to enhance the security of bilateral energy interests.

II. THE IMPORTANCE AND VULNERABILITY OF TRINIDAD AND TOBAGO'S ENERGY SECTOR

In this chapter I will provide a brief overview of the oil and gas industry's integral role in facilitating the Trinidad and Tobago's development. I will begin the chapter by highlighting the significant U.S. and foreign investment in this sector. I will then outline the sector's critical importance as the main source of the country's exports, foreign earnings and economic development. In the last section, I will show in detail the vulnerability of the local energy asset infrastructure to terrorist attack. I will illustrate this by analyzing current trends from collected data on recent terrorist attacks on energy facilities worldwide, and then apply the methodology to prioritized local attack scenarios.

A. PROFILE ON THE ENERGY INDUSTRY OF TRINIDAD AND TOBAGO

The energy sector is the mainstay and driving force of the economy of Trinidad and Tobago. The reserves of oil and gas held by the country are its most important economic assets (see Table 1).

Table 1. Petroleum Reserves as of January 1, 2004

	Proved	Probable	Possible
Crude Oil (MMBO)	756	358	1644
Natural Gas (Tcf)	18.8	8.6	5.9

Historically, Trinidad and Tobago was a major oil exporter, but gas exports now dominate the sector (see Table 2, below). However, revenues from oil sales still constitute an important part of the sector's revenue stream, and production and exploration continues.¹⁴

¹⁴ Trinidad and Tobago is presently ranked the fifth largest producer of LNG in the world and the second largest producer in the Atlantic Basin. Most of the information in this section was provided from the Trinidad and Tobago Ministry of Energy official website. Available from <http://www.energy.gov.tt/applicationloader.asp?app=articles&id=807>, Last accessed October 14, 2005.

Table 2. Crude Oil and Natural Gas Production, 2000 – 2004

	2000	2001	2002	2003	2004
Crude oil					
Exploration (metres)	33,139	45,910	20,593	28,941	29,063
Daily Average Production (barrels)	119,354	113,523	130,626	134,089	122,902
Total Production ('000 barrels)	43,680	41,469	47,824	49,117	44,982
Imports ('000 barrels)	35,195	30,524	32,241	33,186	22,771
Exports ('000 barrels)	19,118	18,323	24,895	26,002	20,467
Natural gas (million cubic feet/day)					
Production	1,498.0	1,596.0	1,826.0	2,594.0	2,938.0
Utilization	1,255.0	1,304.3	1,771.2	2,325.2	2,640.1
of which:					
Petrochemicals	618.5	661.0	693.8	731.1	846.5
Electricity Generation	186.5	193.3	219.2	230.1	239.4
LNG	450.0	450.0	858.2	1,364.0	1,415.3

a Also includes condensates.

b Utilization refers to gas sales, and does not include natural gas used in own consumption.

Natural gas is not only exported as the main cash crop, but it is also used in the development of other highly profitable export products, mainly methanol and fertilizers which are highlighted in Table 3, below. Trinidad and Tobago is currently rated as the world's largest producer and supplier of methanol and urea. The government intends to expand this export market considerably in the near future with the construction of additional ammonia, methanol, and urea plants.

Table 3. Petrochemicals Production and Exports, 2000-04

	2000	2001	2002	2003	2004
Production					
Fertilizers ('000 tonnes)	3,827.5	4,209.0	4,720.5	4,964.7	5,215.8
Methanol ('000 tonnes)	2,480.2	2,788.9	2,828.7	2,845.7	3,067.8
Natural gas liquids ^a ('000 barrels)	6,992.8	7,531.3	8,607.6	10,505.1	10,547.8
Exports					
Fertilizers ('000 tonnes)	3,449.7	3,995.1	4,226.2	4,595.0	4,615.9
Methanol ('000 tonnes)	2,438.6	2,807.9	2,787.7	2,832.3	3,132.9
Natural gas liquids ('000 barrels)	6,800.0	7,666.0	8,766.9	10,236.1	10,368.8

Natural gas liquids include propane, butane and natural gasoline.

Generally, the oil and gas industry is mainly maritime-based though there is some significant land based oil exploration activity in the southern part of the island. Oil and gas for local use are produced mainly on the West Coast by local companies (Petrotrin and the National Gas Company of Trinidad and Tobago NGC), while oil and gas for export are produced mainly on the East coast by foreign owned British and American companies. The main multinational corporations involved in the extraction phase of this activity are:

1. British Petroleum (BPTT): 66.3% total gas production
2. British Gas: 23.6% of total gas production
3. EOG Resources: 7.0% of total gas production
4. The National Gas Company of Trinidad and Tobago, State owned Petrotrin and BHP Billiton: 3.1%

There are eighty-two major offshore platforms that extend from 1 mile to 44 miles off the West and East coasts as highlighted in Table 4. Workers on the East Coast are typically ferried to work by helicopter companies contracted by the oil and gas companies, while West Coast workers are ferried by company owned launches.

Table 4. Breakdown of Oil and Gas Companies Operating Offshore in Trinidad and Tobago (From: Source: South chamber of Industry and Commerce of Trinidad and Tobago Official Website. Available from <http://www.southchamber.org/initiatives/initiative.aspx?CategoryID=1400&id=2928>, Last accessed November 20, 2005.

Company	Location	Number
Petrotrin (Trinmar)*	West Coast (Pt. Fortin)	32
Petrotrin	South East Coast	4
Petrotrin Trintomar*	West Coast	1
BPTT	South East Coast	22
Venture	West Coast (Brighton)	8
NGC	South East Coast	2
EOG	East Coast	5
BG	North Coast/East Coast	2
BHP	North East Coast	5
Moraven	East Coast	1

* The different names reflect different subsidiaries of the state owned corporation based in different geographic areas. Each one coming into existence at different times depending on the discovery of petroleum reserves in those areas.

Two main companies carry out the processing or treatment of natural gas for export in Trinidad and Tobago. The Atlantic LNG Company of Trinidad and Tobago processes the majority of East Coast gas for export to the United States, and it ships these exports from its adjacent port facility. BPTT and the National Gas Company of Trinidad and Tobago jointly own the Atlantic LNG production facility, located at Pt. Fortin. The facility receives about 1.5 Billion cubic feet (Bcf) per day from BPTT and other sources.

Phoenix Park Gas Processors limited (PPGPL) also exports smaller quantities of gas overseas in a strategic alliance with the National Gas Company of Trinidad and Tobago. Gas is supplied from the National Gas Company of Trinidad and Tobago to PPGPL for processing from its gas platforms on both coasts, and then it is marketed for sale in the region. NGC and Petrotrin are state-owned petroleum companies, which also provide a domestic supply of oil and gas. NGC is also responsible for reliable gas service to the to the Pt. Lisas industrial estate and power generation utilities that provide power for the entire island.

BPTT recently completed the Cassia B facility. It is one of the world's largest offshore gas processing units built in Trinidad by a local company as part of a \$500 million project to supply gas to the ALNG trains. The pipeline to shore has the capacity to transport 2 Bcf/d uncompressed gas. BPTT operations are crucial to the island's economy, 60% of BPTT's gas production goes to Atlantic LNG and 30% to NGC for the domestic market. BPTT also holds shares in many of the industrial plants in the Pt. Lisas industrial estate.

The energy sector is regulated and monitored by the Ministry of Energy. This ministry is also responsible for the licensing, taxation and the auction and bidding process for oil and gas companies that wish to engage in exploration around Trinidad and Tobago. Most service industries such as catering, maintenance, transport, and supplies are locally owned, and these support industries provide employment to the rural communities and remote villages where oil and gas are discovered. Expatriate workers work on both coasts, generally on contract as consultants for technical operations, while

local labor is used for less skilled jobs. Expatriates generally live in Trinidad for periods extending to three years or the duration of the exploratory or construction phases of new projects.

The 2006 round of licensing for exploration and development operations will see new operations by a Petrotrin/Exxon Mobil joint venture, Petro Canada, Petro Oil, and Norsk Hydro, increasing the number of expatriates working in the islands. Foreign direct investment (FDI) related to the entrant of new companies is estimated to be \$100 billion dollars over the next ten years based on positive results from these exploratory wells, but they are dependent on a stable investment climate.

Apart for foreign investment, the government is presently working on finalizing several projects which all will be powered or supplied in some way from the natural gas industry. These projects include upgrading and expanding the 160,000-bbl/d refinery at Pointe-a-Pierre, which refines oil from Latin America (Venezuela, Colombia and Brazil) and West Africa, and the construction of downstream ammonia and methanol plants to produce urea, ammonium nitrate and melamine. Other construction projects include an aluminum smelter, a new ethane based petrochemical complex, a gas refinery, a gas-to-liquids facility, and an ethanol plant all based on the southwest coast. Another industrial port is also envisaged in La Brea and another industrial area similar to Pt. Lisas is being planned for Union Estate on the south coast for additional ammonia, urea, methanol production and related industries.

In summary Trinidad and Tobago's energy sector provides the majority of revenue to government and drives economic growth in the island. This sector provides the resources that are the top earning exports for Trinidad and Tobago and the sector also was the main generating force of FDI in the islands and several new projects are planned to further develop the islands' industrial base and capture new foreign investment.

In 2004, this sector contributed approximately 34.1% to the country's GDP, 85.5% to merchandise exports, 70% of foreign exchange earnings and 37.1% to government

revenues. Current U.S. FDI flows in the island are estimated at \$600 Million USD per annum. In the following section, we will see just how vulnerable this crucial sector is to terrorist attack.

B. VULNERABILITY OF LOCAL ENERGY INFRASTRUCTURE

The local energy asset infrastructure in Trinidad needs to be better secured. The fact that Al Qaeda and related transnational groups are targeting oil and gas targets, points to a calculated strategy to attack less secured areas and softer industrial targets. This means that the burden of security is going to fall more and more on the private (security) sector which does not have the wherewithal and experience to provide security responses to military type attacks.

Moreover, many of these multinational oil and gas extraction corporations have safety policies forbidding firearms on their compounds and corporate regimens. This rejects security restrictions and additional security costs in the absence of robust intelligence of an imminent threat. This is mainly because increased security and restricted operations represents reduced production and increased costs.¹⁵ This is a dilemma because military forces are not in the habit of making intelligence available to the business community.

While local companies have employed many ex-Trinidad and Tobago Defense force personnel as their security advisors (BPTT and BGTT), the focus is on loss prevention and industrial petty crime.¹⁶ Contracted security companies that employ local civilians handle security issues and they are not trained or versed in marine emergency

¹⁵ This information was taken from the Trinidad and Tobago Defence Force's National energy assets protection program. (NEAP) This was an eight-month study by a Defence Force team on the island's energy infrastructure hardness to terrorist attack.

¹⁶ Based on the NEAP survey reports.

management and response.¹⁷ Most administrative facilities are built to civilian standards and do not possess the now standard anti-terror building innovations (e.g. car parking restrictions and blast proof windows).

The implementation of the International Ships and Port Security code as part of the U.S. Patriot (maritime security) Act has meant increased security, awareness and checks at port facilities generally. Local legislation patterned on the act placed obligations on local operators to increase security. Each facility must submit a security plan that must then be approved by the Trinidad and Tobago Coast Guard, which has been made the designated security authority. These plans must contain drills to be conducted over specific periods by a designated security officer. The offshore platforms continue to be at risk, however because the local act does not apply to offshore platforms.¹⁸

C. CRITICAL AREAS

There are five critical areas within the Trinidad and Tobago Energy Asset Infrastructure: the Phoenix Park gas transfer valve station, the Atlantic LNG gas processing and loading facility, the Phoenix Park gas processing facility at Pt. Lisas, BPTT/NGC Teak A and Cassia (East Coast) central processing platforms, and Petrotrin's platforms (West Coast) No. 12 and 15.¹⁹

The Phoenix Park Gas transfer station receives all the natural gas from offshore and is the terminus that provides supply to Atlantic LNG in the south, and Phoenix Park Gas processors within the Pt. Lisas industrial complex. These in turn supply the power generation company of Trinidad and Tobago (Powergen) with treated or sweet gas. Powergen supplies electricity to all of the industries located in the Pt. Lisas industrial

¹⁷ "Private owners and operators of infrastructure, facilities, and resources are the first line of defense for their own property, and they should undertake basic facility security improvements. They can improve their defenses against terrorist attacks and criminal acts by embedding into their business practices scalable security measures that reduce systemic or physical vulnerabilities. The elimination of security weaknesses depends upon incorporating best practices and establishing centers of excellence, including feedback loops for lessons learned, as well as a periodic review of each country's security standards for mutual compatibility." The National Maritime Strategy of the United States Washington: The White House, March 8, 2005, sec. iv, p. 18.

¹⁸ The intent of the act was to secure cargo vessels that enter U.S. waters and ports that trade with the United States. Offshore platforms are obviously meant to be stationary and do not fall within the code.

¹⁹ See Figure 1.

complex and the entire island. Phoenix Park Gas transfer station is the central node in the natural gas and power network, and, presently, it is inadequately secured with just a ten-foot fence, and padlocked gate. There is no manned security, no surveillance cameras, and the facility is isolated in the middle of an open field. Should this facility be taken out all East Coast gas will be cut off from the island.²⁰ I argue that this facility should be much better secured and encased by a concrete mantle able to withstand rocket propelled grenade (RPG type) attacks to safeguard the country's industrial base and electricity supply.

The Atlantic LNG facility at Pt. Fortin is the only one of its kind in Trinidad and Tobago in terms of size, capacity and storage. The majority of the LNG tankers bound for the United States are loaded at Atlantic LNG. It is critical because, should this facility be taken out of operation for even a few days, the result would be significant losses to both Trinidad and Tobago and the United States natural gas supply network in lost revenue. Atlantic LNG is secured by two civilian contract firms, but possesses no marine patrol force to secure its harbor area.²¹ The gas transfer couplings that are located on the jetty to fill ships with LNG are intricately fabricated devices that are imported from overseas. They cost in the vicinity of 10 million USD, are delicate, difficult to fabricate, and require a minimum of six to twelve weeks for delivery, should they need to be replaced.²² The effect of destroying these devices alone, or damaging them, which can be achieved by an RPG type attack from the sea, can put the entire facility at a standstill. Atlantic's fourth LNG train is expected to come on line in 2006 and will be the world's largest gas

²⁰ The National Gas Company is working feverishly to complete a 56 inch and another 21 inch bypass lines across the country to reduce this risk. These bypass lines are expected to be completed within the next three years. National Gas Company of Trinidad and Tobago Limited. "*Profile on the National Gas Company of Trinidad and Tobago Limited.*" Available from http://www.ngc.co.tt/About_NGC/CorporateProfile/Default.asp?section=2, Last accessed September 28, 2005.

²¹ Two ex-Defense force personnel working its Marine department and are well versed in maritime security.

²² NEAP Study.

processing plant and this prestige would make it an attractive terrorist target in itself. The fact that this facility lies on the coast signifies that more attention should be paid to maritime domain security awareness.²³

Phoenix Park Gas Processors plant at Pt. Lisas is also critical because its main function is to process the gas for use by the other industrial facilities at the Pt. Lisas industrial complex and to provide “sweet” processed gas to the Power Generation Company of Trinidad and Tobago. Without processed or sweet gas (less impurities) the gas turbines would be prone to less efficiency and breakdowns, if they are allowed to be run at all with crude gas.

Teak A (booster) and Cassia are the most important offshore platforms (on the East Coast) because they are the central node from which natural gas is pumped from other producing platforms for transmission ashore. BPTT is also the largest producer of gas so this makes the facility critical. If the central gas station is taken out then the gas cannot get ashore until another pumping station can be connected to the various wells. This is not an easy undertaking in rough maritime conditions, and this reconnection would have to be done on the sea bed, which, in some cases, is miles below. Petrotrin’s Platform No. 15 is the central node on the west Coast and would be affected in the same way as Teak A.

²³ “Preventing unlawful or hostile exploitation of the maritime domain requires that nations collectively improve their capability to monitor activity throughout the domain, establish responsive decision-making architectures, enhance maritime interdiction capacity, develop effective policing protocols, and build intergovernmental cooperation.” The National Maritime Strategy of the United States, Washington: The White House, March 8, 2005, .sec.iv, p. 13.

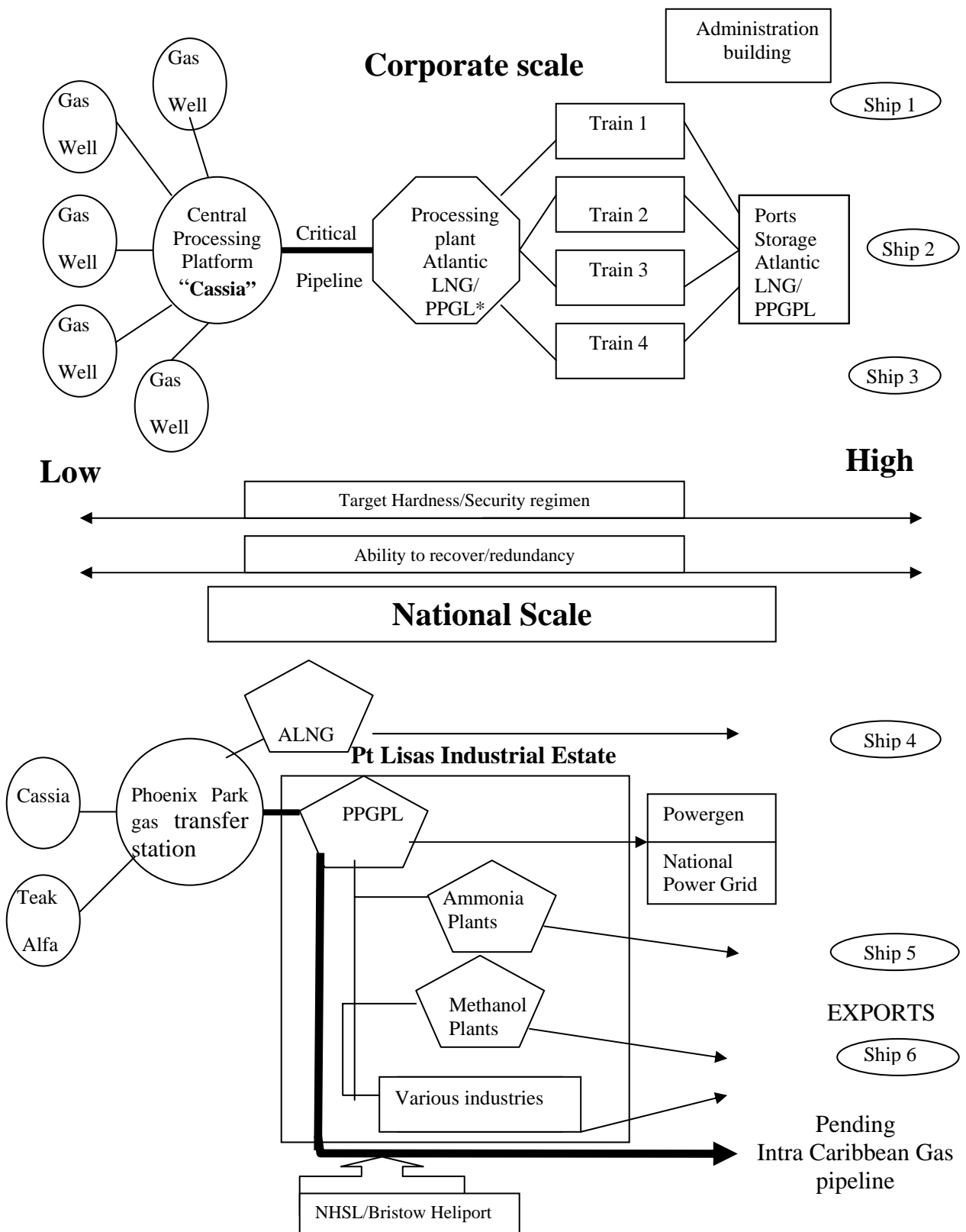


Figure 1. Showing the Vulnerability of Critical Infrastructure in Trinidad and Tobago

In summary, I argue that general security should be improved across the industry, but special emphasis should be placed on the critical areas. For these exceptions, safety rules concerning firearms should be reconsidered. If costs are of concern then priority spending on security should be placed on these areas. While administrative offices are reasonably guarded by contract security, offshore platforms are highly vulnerable to airborne and sea-borne attacks. The following section highlights specific areas that need to be addressed based on information gained from the TTDF's National Energy Assets protection team surveys.

D. PLATFORM SECURITY

The energy industry is heavily focused on safety and this sometimes works at cross-purposes with security and hampers security in many ways. No lock policies for compartments on platforms, including the control room and sleeping quarters (due to fire safety regulations) make most areas on platforms highly accessible. This should be reconsidered. Although most of the platforms are fitted with camera systems, these are usually trained on production processes to be able to quickly detect accidents and not on maritime domain awareness or security. These cameras could be effective in promoting maritime domain awareness but they not sited properly to do this. Minor adjustment to increase pan angles could greatly enhance security particularly at night.

The majority of platforms have permanent vessel landing facilities that are welded on. These allow easy access by anyone who wishes to gain entry to the platform once the sea state permits. This has been the source of weekly complaints by the platform workers, because fishing vessels routinely tie up on the platforms to fish. Their presence, especially when unknown to workers at night, presents a safety hazard (from discarded or dropped items) and their lines entangle the piping systems. Their presence also causes anxiety for platform crews when discovered, who hope they have only good intentions. This is because there is a no firearm policy on platforms, due to potential ignition of residual gas via muzzle flash or stray bullet impact in the production environment. This means the crews have little to defend themselves, and this is another policy area that should be reconsidered.

Emergency shutdown buttons (and automatic assembly response regimens once the button is pressed) are situated at all levels of the platform. This means a terrorist simply has to gain entry to the platform, press a button, and the platform will shut down and all the crew will assemble at emergency points for easy capture. These buttons should be situated with security more in mind.

Presently no background checks are required for offshore workers, but a safety-training certificate is mandatory. This emphasizes the focus on safety and not security. This means that anyone who is qualified and has a safety certificate can gain entry to a platform through any one of the number of various contract services that supply human resource to the oil fields. This means that the information highlighted above can become easily known to those affiliated with workers in the sector, or someone who gains temporary employment in the sector with the intention of learning about the platforms or staging an attack. In this regard a background check system should be implemented at least for critical platforms.

Two main Heliports, National Helicopter Services Limited (NHSL) at Chaguanas, and Bristow International at Point Galeota, ferry workers to the various platforms daily. There is also minimal contract security at these facilities. They are secured by private security and are vulnerable to a military type takeover. Armed personnel can also hijack a helicopter to land and takeover a platform or crash into it, via a suicide attack. The Trinidad and Tobago Defence Force does not possess any armed interceptor aircraft (fixed wing or rotor) so there is little that can be done to stop a hijacked aircraft over the twenty minute flight (on average) from the heliports to the oil fields. These facilities need to be better secured and, most important, there should be an awareness of the potential effects of the seizure of a helicopter by the parties that contract and operate them..

In summary, the local energy industry as a whole must become more security conscious and accept the tradeoffs of increased costs and enhanced security by compromising some aspects of its safety regime. Policies must be balanced in order for the right mix of security and safety to be implemented in a cost effective manner, to ensure these vitals platforms are not lost from either accident or through malevolent action. Either alternative will lead to large-scale losses for the company and country.

E. METHODS OF ATTACK

There are several methods of terrorist attack, which run the gamut from sabotage to aircraft attacks on critical infrastructure. By analyzing the trends from recent attacks around the world, we can derive a prioritized threat matrix particular to Trinidad and Tobago.

Using the data from Appendices A (Attacks on the Iraqi Petroleum Industry) and B (International Attacks on Energy Infrastructure 2000 to 2005) we can say generally that terrorists have increasingly targeted oil facilities and particularly in the case of Iraq in keeping with Al Qaeda's grand strategy. Oil and gas infrastructures are connected systems, and the situation in Iraq shows that small scale, inexpensive attacks at one point can have larger disruptive effects throughout the system. The most common attack scenario observed in the data is an IED attack in a remote area. Large equipment and huge geographic expanses of expensive infrastructure cannot be easily relocated and secured, and thus the security of these vast systems of infrastructure is highly labor-intensive, making them subject to repeated attacks.

Apart from physical attacks on infrastructure and facilities, terrorists targeted personnel and repair crews sent in the aftermath of attacks. In the majority of cases, repairs to attacked pipelines took between one week and three months to effect and operations appeared to continue despite attacks.

The kidnapping of foreign nationals (expatriate workers) also appears to be a common scenario. Looking at the data, we can also say that attacks can be foiled by the presence of alert, armed, security services (as is the case in several instances when security was vigilant). Based on these observations the following Table highlights the application of these threats to Trinidad and Tobago's energy sector. The threats that have the potential to cause the highest number of deaths and cost should receive priority.

Table 5. Local Threat Scenarios²⁴

Target	Method of Attack	Possible deaths	Costs	Remarks
Port facility gas transfer couplings and infrastructure Storage facility	Bombing	High	High	Atlantic LNG, Pt. Lisas, PPGL jetty are the three areas with gas transfer coupling gantries, each valued at 10 million USD <u>Mitigation approach: Maritime domain awareness and law enforcement patrol</u>
Port facility gas transfer couplings and infrastructure	Sea –borne attack with high explosive projectile	Low	High	If attack is precise on coupling and during nighttime, off-peak hours, deaths will be low. <u>Mitigation approach: intelligence, contract security vigilance, law enforcement patrol</u>
Port Facility with LNG tanker alongside	Sea –borne attack with high explosive projectile	High	High	If LNG can be ignited this may cause a blast radius of up to 500 meters <u>Mitigation approach: intelligence, contract security vigilance, law enforcement patrol</u>
Administrative office Ashore*	Chemical attack	Medium	Daily transactions	Actual costs are hard to assess due to daily variance in commercial activity. Production itself would not stop. <u>Mitigation approach: contract security awareness and vigilance.</u>
Administrative office ashore	Small arms attack	Low-Medium	Low	Severance, benefits, increased security. <u>Mitigation approach contract security awareness and vigilance</u>
Offshore platform	Sabotage of production machinery	Minimal	Production	Daily production loss, replacement costs, increased security and investigation costs. <u>Mitigation approach: Maritime domain awareness and law enforcement patrol</u>
Offshore platform	Sabotage	Low	Low	Discovery of sabotage would result in evacuation of the platform and daily production losses until situation is rectified and investigated

²⁴ NEAP unclassified data.

Target	Method of Attack	Possible deaths	Costs	Remarks
Offshore platform	Ramming by vessel	Low	Low	Most probable damage will be to piping system Mitigation approach: <u>Maritime domain awareness and law enforcement patrol</u>
Offshore platform	Ramming platform with vessel with explosives	High	High	Catastrophic loss with environmental impact. Mitigation approach: <u>Intelligence, Maritime domain awareness and law enforcement patrol</u>
Offshore Platform	Small arms attack	Low	Low	This could be catastrophic if diesel storage facility on platform is hit. Improbable if vessel is used as weapons platform in rough water. Mitigation approach: <u>Maritime domain awareness and law enforcement patrol</u>
Offshore platform	Hijacking	Low	Medium	Depending on length of stand off, but platform can be shut down from ashore to minimize production risk and environmental impact
Offshore platform	Bombing of platform	High	High	Catastrophic loss and some environmental damage. Mitigation approach: <u>intelligence>evacuation>crisis management</u>
Offshore platform	Suicide aircraft Attack	High	High	Loss of aircraft crew and platform crew. Most probable scenario: crew change helicopter Mitigation approach: <u>intelligence>forewarning>evacuation</u>
Phoenix Park gas terminal gateway system.	High explosive projectile or IED	Low	High	No loss of life but is critical to Trinidad and Tobago industry Mitigation approach: <u>hardening of site</u>

*Average number of persons working in administrative offices = 120

Average number of workers per platform overnight: 15, during the day: 35.

Key: Costs: high = over 20 million USD, medium = over 10 million USD, low = under 5 million USD
Deaths are high when over 100 persons are killed, medium over 20 persons, low less than 10 persons.

In conclusion, extrapolating from the Table the attack scenarios posing the highest costs and the most damage are attacks on the offshore platforms. These can be mitigated by increased presence of law enforcement/military patrol in the offshore operations

sector, maritime domain awareness, and vigilant production crews versed in security training. A credible and capable deterrent/response mechanism in force and an effective intelligence system also appear to be essential in mitigating these threats.

III. THREATS TO TRINIDAD AND TOBAGO'S ENERGY SECTOR

Small islands struggle with overlapping security problems of the twenty-first century; where the delimitation between internal and external threats are blurred, when national and international issues are intrinsically linked and more than ever traditional civil military structures seem inadequate. Drug trafficking, crime, and terrorism all present complex threats to the energy sector and they require proactive responses and hybrid structures in response. Trinidad and Tobago is presently grappling with a myriad of maritime-based threats and the Government is rapidly trying to transform its military and para-military forces to meet the challenge. In this chapter, I will examine two of the main threats to the local energy sector: rising crime, brought about by increased smuggling activity around Trinidad and Tobago, and, the potential for maritime terrorism. The current operational state of the local maritime security apparatus to counter these threats will also be examined.

A. THE LOCAL CRIME SITUATION

Crime in Trinidad has become a significant problem. This situation, apart from any terrorist threats to the energy sector, can adversely affect the energy sector by deterring future investment and by causing the reduction of activity or pull out of the oil and gas companies operating in Trinidad and Tobago. There are several other countries developing LNG extraction and processing capabilities,²⁵ and crime has the potential to make operations in Trinidad relatively more risky and costly²⁶ compared to these other areas for potential investment by transnational corporations. Trinidad's main comparative advantages in the rapidly developing LNG industry are its relatively cheaper costs per supply of BTU of gas²⁷ and its relative stability. This is rapidly being challenged due to

²⁵ Brunei, Indonesia, Oman, Australia, Libya, Algeria, Nigeria, United Arab Emirates, and Malaysia are all developing LNG extraction and production plants, however most of them will not be on line for many years. Henry Lee, "*Dawning of a New Era: The LNG Story*," Environment and Natural Resources Program (ENRP) Discussion Paper 2005-07, John F. Kennedy School of Government. Cambridge, MA: April 2005.

²⁶ This is due to additional security and insurance costs, and deteriorating investor confidence caused by crime in comparison to other sources of gas.

²⁷ See Table 15, Chapter IV, p. 80.

the unprecedented increase in crime. Foreign oil companies always have the option of moving to areas with less risk. The following is an extract from the daily newspaper highlighting the increase in crime:

Last month was the most violent and bloodiest in the nation's history with 40 murders in 30 days. Homicide Bureau figures show Detectives say, based on the figures the country has never experienced 'such unprecedented violence before even when compared to July 1990 when the attempted coup by the Jamaat Al Muslimeen took place.' Homicide officers say the nation can 'easily expect' close to 370 murders this year if the pattern continues. Official Homicide Bureau figures put the reported murder toll as of yesterday at 287, an almost 43% increase in murders when compared with last year. The number of people killed per 1000 citizens has also risen sharply (as of 14 October 2005), placing Trinidad and Tobago in the top 12 in the world based on its homicide rate per 1000 persons. In the last three years, Trinidad's murder rate has snowballed by almost 70% and close to 70% percent of those murders are committed with firearms.²⁸

The local situation has been compared to Colombia in terms of the frequency of kidnapping, (see Table 6) and it is one that needs to be addressed. There were 142 kidnapping for ransom in 2003, 96 in 2004, and to date 189 in 2005 to date. The local murder rate has also doubled in less than five years (see Table 6).

²⁸ Darryl Heeralal, "Killer Month: September Bloodiest on Record-40 Slain in 30 Days," Trinidad Express Online October 3, 2005. Available from <http://www.trinidadexpress.com/index.pl/article?id=105808757>, Last accessed October 15, 2005.

Table 6. The Number of Murders in Trinidad and Tobago and Trinidad and Tobago's Ranking in Murders per 1000 Persons Globally (From: Homicide Bureau Trinidad and Tobago Police. Data for Extrapolated Murder Rate Ranking Obtained from Nation Master.com. Available from. http://www.nationmaster.com/graph-T/cri_mur_cap. Last accessed October 15, 2005

	Total Murders committed in Trinidad and Tobago (T&T)		Current World ranking, Murders Murders per 1000 person
2005	334 as of 10/18/05		Colombia 0.61
2004	260		South Africa 0.49
2003	229		Jamaica 0.32
2002	171		Venezuela 0.31
2001	151		T&T 0.23
2000	118		Russia 0.20
1999	93		Mexico 0.13
1998	98		Estonia 0.10
1997	101		Latvia 0.10
1996	106		Lithuania 0.10
1995	122		Belarus 0.09

The following statement by the local American chamber of commerce highlights the level of fear in the country at present and its possible negative effect on the country's energy industry.

Am Cham believes that, in regards to the continually escalating crime situation, the future of this country is being put at risk, and has created an environment of uncertainty, which will have significant negative impact on both investment and consumption levels. It also mirrors a serious societal sickness, which is eating away at the

well being, the psyche, the very lives and livelihoods of every citizen of our country. The reality of crime also affects our ex-pat and tourist communities.²⁹

In his 2006 National Budget presentation, the Honorable Patrick Manning, Prime Minister of Trinidad and Tobago also stated

Mr. Speaker, the escalation of violent crime and anti-social behavior constitute the most fundamental threat to the economic and social development of our country and the well being of our people...Any effective strategy to control crime must be based on the fullest understanding of the dimension of the problem. Trinidad and Tobago and other islands of the Caribbean are located directly between the major cocaine producers of South America and the major consumers of North America and Western Europe. The recent seizure of nearly six tons of cocaine in our territorial waters has been described by our international partners in the fight against drug trafficking as possibly less than 10 percent of the amount being transshipped through our waters. The proceeds from this trade are also used to finance the procurement of illegal arms and as a result, sophisticated arsenals end up in the hands of competing gangs, which in turn fuel the murder rate. Over time other criminal activities emerge, the most sinister is kidnapping. There can be no doubt as to the debilitating effect of kidnapping on the law abiding majority, the fear and anxiety it creates and the extent to which it contributes to the perception that our country is not safe. Within this context, therefore, crime, although manifested nationally, is coordinated and directed, both locally and internationally. Accordingly solutions must go beyond the community and national borders to regional and international cooperation. The corruption, intimidation and violence go hand in hand with organized crime, undermine law and order and threaten the very essence of democratic governance.³⁰

The communities in Trinidad and Tobago that record the highest level of criminal activity have been the most impoverished areas since the 1970's oil boom, and continue to be so five years into the present gas boom.³¹ Many of the government's methods of

²⁹ The American Chamber of Commerce of Trinidad and Tobago. Statement on Current Crime Situation, April 20, 2005. When compared with the United Kingdom, which has a population of 60 million but a murder rate of just under 1 per 100,000, the conclusions are indeed alarming.

³⁰ 2006 National Budget presentation by the Honorable Patrick Manning Prime Minister of Trinidad and Tobago, House of representatives, The Red House, Port of Spain, September 28, 2005.

social delivery and attempts at sharing the wealth routinely become criminalized by the underprivileged. The Government's *Urban Relief* and *Community Environmental Protection Employment Programs*, (temporary road works and environmental and conservation construction programs in depressed areas) have been infiltrated by gangs and leadership positions taken by members of the Jamaat Al Muslimeen.³² In order to gain legitimacy and power the JAM has found a way of gaining entry into the local political scene by immersing itself in the intricate dealings of the criminal underworld. The JAM has promoted itself as a power broker between the government and the underworld, and has implied it can control the various "crime bosses" in depressed areas where crime is rampant. Employees of these programs are featured weekly in obituaries as a result of gang warfare. Government housing projects and the Port of Spain's overhanging Laventille area have become overwhelmed by gang violence, murder and violent competition for short-term jobs, and the proceeds of criminal enterprise. According to the Minister of National Security, almost sixty percent of the homicides reported are gang related, many are also related to government contract competition in depressed areas.³³ The increased level of criminal activity has resulted in the issue of several negative travel advisories posted by the British and U.S. governments, warning visitors and expatriate workers about the crime situation in Trinidad and Tobago. Crime

³¹ One police district in Laventille has accounted for over one-fifth of the country's 311 murders. The Besson Street (Laventille) police district, one of the more than 60 districts throughout the country, has recorded 72 murders for the year. There has already been a 15 per cent increase in murders in that district with 58 homicides last year, Darryl Heeralal "POS teen killed on birthday," *Trinidad Express* November 1, 2005. Available from http://www.trinidadexpress.com/index.pl/article_news?id=112581947, Last accessed November 18, 2005.

³² A few days ago a young man before the court, asked about the nature of his employment answered, honestly enough, that he did not work but was in the habit of getting URP checks. That is but one of the negative consequences of public works programs in this country, however well-meaning the intention of the various administrations. Also, to our increasing alarm, the corruption bar continues to be raised in that, whatever the connivance of insiders, outsiders in the form of criminals who organize themselves precisely for the purpose keep muscling in on the programmes Trinidad and Tobago Express Newspapers: Editorial: "URP Clean Up an Urgent Matter," April 29, 2005. Available from <http://www.trinidadexpress.com/index.pl/article?id=75054962>, Last accessed November 18, 2005.

³³ "Many of these communities are unplanned, which makes them generally inaccessible, but they are close enough to the commercial centers to provide cover for kidnappers and extortionists. The criminal elite also finances the acquisition of sophisticated arsenals, which, in the hands of criminal gangs, fuel the murder rate and expand the range of criminal enterprises to include kidnapping and extortion." Statement of the Honorable Minister of National Security Martin Joseph. Shirley Bahadur, "Joseph committed to crime fight," *Trinidad Guardian Online*, October 12, 2005. Available from <http://www.guardian.co.tt/archives/2005-10-14/news16.html>, Last accessed November 21, 2005.

reduces the perception of national security and stability in the island and has the power to destroy the positive investment climate of the country³⁴ and this has to be dealt with expeditiously.

B. TERRORIST THREAT

In the following section, evidence will be presented to show that Trinidad and Tobago is vulnerable to terrorist attack. I will present evidence, which shows that the island hosts a numbers of fundamental Islamic groups who are anti-American, generally support the Islamic struggle in the Middle East, promote the use of armed struggle to establish Islamic states and thus present a danger to the country's energy sector.

Dr. Angel Rabasa, a terrorism expert from the RAND organization in Washington D.C., stated that Trinidad and Tobago was highly vulnerable to becoming a host to terrorist networks and called on the security services to pay close attention to mosques in the country.³⁵

In this regard, the growth of radical Islamic groups in Trinidad both Islamist (co-option of the organs and resources of the state under Islamic rule) and Islamic Salafist (anti-modernism) must be a matter of concern to the national security authorities. Islamist movements like the Jamaat Al Muslimeen seek to take the reigns of power for the development of Islamic people within the island. The Salafists like the Waajihatul Islaamiyyah wish to expel U.S. influence in the country and attack the symbols and tools driving modernity and development in Trinidad in order to return to a traditional Islamic civilization (similar to the Taliban in Afghanistan).

³⁴ Crime is a major challenge affecting both foreign and local investment, said Wayne Dass, head, Group Investment and Management Unit at Caribbean Money Market Brokers (CMMB). Dass was speaking at a luncheon yesterday hosted by CMMB and Bear Stearns Company, a financial company based in the United States, for executives in the financial services. In giving his analysis for the economic outlook for Trinidad and Tobago in the next financial year, Dass said, "We are looking at robust growth, strengthening of external policies, small budget surplus resulting, a large non-oil deficit, rising interest rates and a violent crime spiral." Skilled people are leaving the country and this will only continue with the current crime rate," the financial expert said. Dr Carl Ross, head of Emerging Markets Sovereign Research at Bear Stearns said rampant crime in Trinidad and Tobago and across the Caribbean is a deterrent to investors to bring their businesses to the country and region. Trinidad and Tobago Express Newspapers, "Crime Affecting Investments" November 18, 2005 Available from <http://www.trinidadexpress.com/index.pl/article?id=117036265>. Last accessed November 18, 2005.

³⁵ Corey Connelly, "Trinidad Ripe for Terrorist Attack," Trinidad Guardian On Line, April 29, 2004 Available from <http://www.guardian.co.tt/archives/2004-04-29/news2.html>. Last accessed November 18, 2005.

Umar Abdullah, leader of the Princess Town (a city in Trinidad) based Waajihatul Islaamiyyah stated, in response to Dr. Rabasa's reported comments, "We view this as yet another sorry and sick effort by the U.S. government to encourage our security forces to target and oppress Muslims in this country...we must warn that one must be careful in making such comments or statements as it could only be met with serious consequences." Umar Abdullah is a veteran of the battlefields of Afghanistan and has openly admitted support to Al Qaeda. Mr. Abdullah who has since disappeared from the national scene is believed to be behind the threats to U.S. and British interests in Trinidad and Tobago, in 2003.³⁶

Berry³⁷ argues that there is a connection between the Al Qaeda network and local groups and cells operating in the Northern Coastal areas of Venezuela and Margarita, (80 miles west of Trinidad), an island off the North coast of Venezuela. Venezuela is Trinidad and Tobago's closest neighbour and just seven miles separate the two countries. Trinidad's larger Muslim population has already spawned violent radical groups; and this potential link and threat cannot be disregarded. This proximate activity could make it easy for members of the Jamaat Al Muslimeen to travel to Venezuela possibly for funding and support towards achieving their aim of establishing an Islamic state in Trinidad and Tobago.³⁸

Olive Enyahooma-El, a high-ranking member of the Jamaat Al Muslimeen and a key lieutenant of the group's leader Yasin Abu Bakr was extradited in early 2005 and is presently imprisoned in the United States on gun running charges. ATF agents in Fort Lauderdale, Florida³⁹ seized a shipment to Enyahooma-El in 2001 which contained 60 AK 47 assault rifles, and 10 Mac 10 sub machine guns. The funds associated with the transaction were traced by the ATF through Bahrain, Luxembourg, Connecticut and back to the Jamaat Al Muslimeen headquarters at No.1 Mucurapo Road, Port of Spain. The

³⁶ Waajihatul Islaamiyyah has strong and publicly acknowledged links to the Jamaat Al Muslimeen, Hamas and Islamic Jihad. Prior Beharry: Trinidad Express, April 30, 2004.

³⁷ La Verle Berry et al., "Global Overview of Narcotics, Terrorists and Other Extremist Groups." Washington: Library of Congress 2002.

³⁸ As highlighted earlier economic attacks are a known strategy of Al Qaeda affiliated groups.

³⁹ Camini Marajh, "U.S. on Jamaat Trail." Trinidad Express, August 15, 2004. Available from <http://www.trinidadexpress.com/index.pl/article?id=3362003>, Last accessed November 18, 2005.

FBI and ATF presently have a member of the Jamaat AL Muslimeen in custody in the United States Federal Witness Protection program, in connection with this arms shipment. The witness has indicated that the Jamaat Al Muslimeen is engaged in narco-trafficking as one its primary means of funding.⁴⁰ He also indicated that secondary sources of funding for the JAM in the past have included sales of weapons to narcotics traffickers, violent co-option of rival narco-trafficking organizations, contracted murder, extortion, and kidnapping. Indeed payment for the weapons in question was made in part with quantities of cocaine, and U.S. officials are tracking other related sources of laundered money.⁴¹

Trinidad has recently experienced a series of unclaimed terrorist bombings in its capital Port of Spain. Improvised explosive devices were exploded on the busy streets of its shopping district on July 11, 2005, and again on August 10, 2005. Sixteen people were injured including a 67 year old woman who suffered amputation of her right leg. Two more bombs exploded on September 10, 2005 and October 14, 2005, in a U.S. franchised fast food outlet (Kentucky Fried Chicken in Independence square) and a popular local bar and a further ten people were injured. The Jamaat compound was raided by a joint army/police unit soon after the last bombing on October 11, 2005. During this raid, Abu Bakr was arrested as well as four other members of the Muslimeen, for questioning in connection with the blast but they were all subsequently released. Samples of their clothing were taken to compare with debris from the blast scene, and these have sent to domestic and U.S. FBI crime labs for chemical testing. Results from these tests are yet to be released.

Based on the Government efforts to detain Abu Bakr and other members of the Jamaat after the last blast, and the recent thorough search for explosives at the compound and at other residences of members of the Jamaat, it is reasonable to deduce that the government is working on classified intelligence which leads it to believe that Abu Bakr may be behind the bombing campaign. On the 7th of November, 2005 Abu Bakr was arrested again but this time he was charged for seditious comments he made during a

⁴⁰ Camini Marajh.

⁴¹ Ibid.

Juma⁴² at the Jamaat on November 4, 2005. On November 11, 2005, the Trinidad and Tobago Army and elements of the Police took over the Jamaat compound and, using a backhoe, broke down the walls to Abu Bakr's office and dug a large hole beneath it in a search for weapons based on intelligence. A sniper rifle, a hand grenade, communications equipment and five hundred and ninety six rounds of assorted ammunition were found on the compound and Abu Bakr was charged jointly with two members of the Jamaat al Muslimeen for possession of arms, ammunition and the grenade,⁴³ although he was in custody at the time.⁴⁴ Eight other mosques affiliated with the Jamaat were simultaneously raided but no other arms or ammunition were seized. While the raid and search was going on at the Jamaat, members barred from entering the compound prostrated themselves in front of the media in prayer and anger. The Jamaat's deputy leader Kala Akibua was quoted as saying "Government has declared war on the Muslimeen," to which the prostrated members replied "We can't get no peace, you can't get no peace."⁴⁵

The court testimony and other purely unclassified information presented above shows that the JAM has been linked to maritime-based drugs and arm trafficking, which contribute to the high crime levels. I argue that this presents a threat to the local energy sector in terms of reducing investor confidence. In my opinion, this alone should make the legal prosecution and dissolution of this group a priority of the government

Moreover, Abu Bakr is presently being held on seven different charges, pertaining to sedition, weapons and arms possession, and threatening with menaces. I argue that if Mr. Bakr perceives that his chances of an acquittal in his various upcoming trials, are declining, he could initiate counter action in a slash and burn policy or retaliation. This

⁴² "Bakr, 64, who had allegedly said at last Friday's Eid celebration at the Mucurapo Road mosque that a war will be waged if Muslims did not pay zakaat or Islamic alms to his jamaat next year, was taken from his Diego Martin home around midnight Monday and was at CID until his court appearance yesterday." Hayden Mills "No Bail for Bakr," November 11, 2005. Trinidad Express. Available from http://www.trinidadexpress.com/index.pl/article_news?id=115048530, Last accessed November 18, 2005.

⁴³ Hayden Mills "Army Takes over Jamaat," Trinidad Express November 11, 2005. Available from http://www.trinidadexpress.com/index.pl/article_news?id=115048533, Last accessed November 18, 2005.

⁴⁴ Despite the search at the Jamaat compound and the previous detention of members of the JAM for questioning, and evidence collection, no one has been indicted or charged for the bombings, nor have any explosive materials been seized.

⁴⁵ Ibid. and Carl Motroo "Gov't Has Declared War," Trinidad Guardian Online, November 11, 2005. Available from http://www.trinidadandtobagonews.com/forum/webbbs_config.pl/read/3279, Last accessed November 18, 2005.

theory is supported by the recent arrest of a member of the Jamaat Al Muslimeen on Friday, November 18, 2005. During the search of his premises prior to his arrest, an alleged hit list, containing the names of the state's legal team charged with indicting and prosecuting Abu Bakr, including pictures and payment amounts, was discovered.⁴⁶ This provides clear evidence that members of the group may view violence as an option to retaliate against the state for targeting the group's leader, or as a means of securing his release. Bakr is widely known and has maintained personal relationships with the leaders of many "liberation" groups in the Middle East and the Jamaat Al Muslimeen subsisted on training and financial support from these Middle Eastern⁴⁷ benefactors and mentors in its early years.⁴⁸ I argue that it is reasonable to expect that these benefactors may be approached by the group for assistance, monetary or otherwise, to gain his release.

Taken together with Abu Bakr's recent public statements concerning his disapproval of the use of the funds generated in the energy sector and its importance to both Trinidad and the United States⁴⁹ this group should be closely monitored. The energy sector should also be heavily secured to remove it as an option for attack, as a means of coercion for Bakr's release. Bearing in mind Abu Bakr's international connections in the

⁴⁶ The five names on the list are Attorney General John Jeremie, Chief Magistrate Sherman McNicolls, head of the Central Authority Unit David West, Douglas Mendes SC and Independent Senator Dana Seetahal. Newspaper photographs of the five were cut out, pasted on cardboard and next to each picture was a cash figure, Jeremie \$600,000, McNicolls \$300,000, Mendes \$500,000, Seetahal, \$270,000 and West \$258,000. The five were instrumental in the extradition of Small and with the exception of West on Friday when they raided the man's home in connection with the recent bombings in Port of Spain. Darryl Heeralal "Police to meet hit list targets," Trinidad Express, November 21, 2005. Available from http://www.trinidadexpress.com/index.pl/article_news?id=117735371, Last accessed November 20, 2005.

⁴⁷ He is a personal friend of Colonel Mummar Qaddafi, Louis Farrakhan in the United States and several other groups in Saudi Arabia, Libya, and Sudan where he is seen as a revolutionary and man of action. Camini Marajh. "Time to Mount Tighter Muslimeen Watch," Trinidad and Tobago Express, August 22, 2004.

⁴⁸ Training, funds, arms, and support for the 1990 coup attempt originated in Libya. Libya's role in sponsoring terrorism against the United States is well known. U.S. State Department Patterns of Global terrorism report 2002. Available from <http://www.state.gov/s/ct/rls/pgtrpt/2002/html/19988.htm>, Last accessed November 18, 2005.

⁴⁹ In a recent speech entitled "Discussions on matters of social and political significance," at the Croisee, San Juan Trinidad on Friday, August 15, 2005, Abu Bakr stated "People walking in Trinidad hungry, nothing to eat, children sleeping on the streets, old people, young people suffering and Trinidad is the largest producer of methanol (and) ammonia in the world; we supply 76 percent of gas for the great monolith of America (but) there's no jobs; they framed a case against me, and in so doing they tested the waters." Sasha Mohammed, "Jamaat Blasts Media," Trinidad Guardian On line. July 17, 2005. Available from <http://www.guardian.co.tt/news7.html>, Last accessed September 28, 2005.

Islamic world, and the religious connotations of the Government's crackdown, and targeting of the radical groups leader⁵⁰ (state versus radical Islam) I argue that what is required is U.S. security assistance in preventing any retaliation or backlash from this group. The United States intelligence system could be vital in this regard in preventing foreign intervention of any kind.

C. THE LOCAL SECURITY FORCES AVAILABLE TO SECURE THE ENERGY SECTOR

The Government has committed the finite resources of the Defence Force to tackle what it sees as its first two priorities: crime and terrorism. The upsurge in crime has proven to be beyond the capabilities of the national police⁵¹ which itself is reforming and, like Jamaica, this has lead to TTDF soldiers being deployed out on the streets in high crime areas in support of the police. Without a clear national security strategy, this appears as another political quick fix. Lack of direction and metrics to measure the effectiveness of these strategies, or to provide other solutions, produces mission creep, and personnel fatigue, which further leads to retention problems. This ultimately leads to poorer service, less quality operations by the nation's military services, are already stretched to the limit with their current tasks and resources, and less actual "security" operations. The government needs to commit its strategy to paper and provide the funds to support it. One of the first priorities of such a document must be securing the nation's economic engine, the energy industry, because this sector provides the funds for all other projects.

While the Government has invested heavily in the energy sector it has not concomitantly invested in the security of the sector. The Trinidad and Tobago Coast Guard has just one 60m, 15-knot Offshore Patrol vessel in its inventory: the TTS Nelson,

⁵⁰ Where Al Qaeda affiliated groups can view the situation as another case where a Western allied state is cracking down on Muslims.

⁵¹ "In addition, much of the Police Service has lost the respect of society, primarily because a) the perception of rogue cops in the system has not been adequately dealt with, and b) because of a lack of transparent investigations or closure of numerous reports of police misconduct and brutality in the conduct of their duties. Their credibility needs to be reestablished, not through a public relations job, but by sustained actions." A proposal forwarded by Am Cham to bring in Rudolph Giuliani and Bernard Kerik (former Commissioner of the New York Police Department) to submit a strategic plan to fight escalating crime in the island was rejected by the Minister of National Security. The American Chamber of Commerce of Trinidad and Tobago. Statement on Current Crime Situation, April 20, 2005.

which is 28 years old. The Coast Guard maintained two highly sophisticated C-26 surveillance aircraft, which patrolled regularly but these aircraft have been handed over to the recently formed Trinidad and Tobago Air Guard and the unit no longer exercises operational control of these aircraft.⁵² Oil and gas operations are concentrated offshore on the southwestern coast and southeastern coasts. TTCG maritime response times from its bases at Tobago and Staubles Bay, Trinidad, (West Coast), are five hours and ten hours respectively to the East Coast. A base is maintained at Point Galeota on the southeastern tip of Trinidad but no vessel, other than a small craft, is kept there on a permanent basis (the current facilities do not allow for a vessel larger than eighty feet even if one were available). The extremely rough waters on the East coast make small boat operations difficult and dangerous but not impossible (in terms of gaining entry to platforms). The TTCG unit also maintains a Base at Fullarton on the southwest coast but this base can also only accommodate very small craft and its chief mission is protection of fishermen in the area and counter-drug operations. I argue that the TTCG does not have adequate proximate bases to secure these vital operations and it needs to significantly develop the facilities it already has in order to maintain a meaningful presence in the oil and gas areas.⁵³

The Trinidad and Tobago Coast Guard has a first world capable maritime Special Forces unit, the Special Naval Unit (SNU). However, its focus since the late 1980s has been on counter-drug operations. It presently possesses no real time capability in maritime counter-terrorist operations in the oil and gas industry domain.⁵⁴ The last time the SNU was trained to mission capability in this discipline was in 1988/90 by the

⁵² Source: Trinidad and Tobago Coast Guard Daily Operational Status Reports. 2004 & Source T & T Coast Guard official website. Available at <http://www.ttdf.mil.tt/ttcg/index.html>. Last accessed November 19, 2005.

⁵³ This argument is based on 13 years of actual operational experience in these areas, responding to emergency situations in the oil fields, as a patrol boat commander and commander of the TTDF/CG SNU.

⁵⁴ Colin Gray, *Explorations in Strategy*. Westport: Greenwood Press, 1996, p. 164, describes special operations as expressions of agility, maneuver, and finesse. Special operations forces are of greatest strategic utility in peacetime or in low intensity conflicts, which are the contexts wherein they uniquely provide military or paramilitary options to policymakers with acute security problems (p. 185). For protection and deterrence to be successful, maritime security forces must be visible, vigilant, well trained, well equipped, mobile, adaptive, and capable of generating effective presence quickly, randomly, and unpredictably. The National Maritime Strategy of the United States Washington: The White House, March 8, 2005, Sec.iv, p. 22.

prestigious U.S. Navy Seal Team 6 Red Cell⁵⁵ but nearly all of the members who received this training have since left the unit. The unit no longer possesses any of the necessary low velocity ammunition, flash suppressors or specialized climbing equipment for operations in this arena, nor has there been the requisite familiarization with the new types of platforms. The ability to assemble a unit for these types of operations is a long term and expensive process that requires specialized equipment, constant training, and access to actual facilities for practice.⁵⁶ The government should start equipping this unit as quickly as possible to address this lack of capability.

In 2003, the TTDF began the National Energy Assets Protection group, which visited the offshore platforms of all major energy producing firms and ports in Trinidad and Tobago.⁵⁷ A dossier was prepared for each facility with audit results and recommendations for improved security and target hardness at these facilities, but the group had no authority to enforce their implementation. It is uncertain if any of the recommendations were implemented because this joint Army/Coast Guard unit was a temporary arrangement. What is needed is a more permanent entity to address ongoing development and trends in maritime security related to the local energy industry and to ensure the sector is adequately secured.

The government has also undertaken to implement a new high definition Israeli radar system in the TTCG's coastal radar surveillance system. This system covers a substantial portion of the western and eastern oil fields, however, integral to a detection system are the physical assets to respond to a detected target and this area needs to be dramatically improved.

⁵⁵Trinidad and Tobago Coast Guard Memorandum file folder for 1988 and 1990. Volume 1.

⁵⁶ The success of special forces responses to incidences of terror apart from minimizing casualties is to be what Napoleon, Jomini and Clausewitz all agree on, "to be superior at the decisive spot" Colin Gray, *Explorations in Strategy*. Westport: Greenwood Press, 1996, p. 147. Knowledge about that decisive "spot" or operating area is essential to ensure success.

⁵⁷ Trinidad and Tobago Defence Force weekly orders March –August 2004.

In March 2004, the TTCG assembled its Port security branch charged with the security of maritime ports.⁵⁸ Its functions are primarily administrative, and it is the registered authority for signing off or approving port security plans at these energy facilities. It is still in its growth phase and is presently understaffed and challenged for resources and it does not possess any patrol assets or dedicated response units.

The Trinidad and Tobago Coast Guard possesses five patrol vessels (four 27m-patrol vessels, and one 60-meter offshore patrol vessel) all in excess of 20 years old, and some thirty other very small patrol craft. Generally, there is limited presence by the Coast Guard in the area due to asset limitations, and this contributes to the ease of access to these platforms by terrorists, because there is no deterrent and very limited early detection assets to prevent attacks.

The assets that do exist to patrol these areas are slow (18 knots maximum) and there is no quick surface response capability by law enforcement. There is a five-hour minimum response by vessels for East Coast, and one hour for West Coast, with the current basing and asset arrangements, headquartered mainly at Staubles Bay.

By air, it takes an average of thirty-five minutes to access West and East Coast fields by light unarmed helicopter and surveillance aircraft from the Trinidad and Tobago Air Guard's main base at Piarco. This may be too long, and the relative limited loiter capability for helicopter and aircraft based on limited fuel capacity means credible security in the oil fields can only be achieved by a system of continuous presence using surface assets. The government needs to invest in a real time, sustainable offshore patrol capability to match its expanded energy sector initiatives. Presently this sector accounts for 34 % of GDP, yet just a fraction of the minuscule Defense budget (0.6% of GDP) is used to secure it.

It is worthwhile to reiterate and strongly recommend that the government forge closer ties with the United States in this mutually important domain and that the U.S.

⁵⁸ The government has also recently spent 95 million on container scanning equipment, and other ISPS security related equipment and infrastructure, and is among the first to fully implement the code regionally. This was in concert with the formation of an entire branch (equal in size to an army battalion) of the Trinidad and Tobago Coast Guard to be solely devoted to Port Security. Source T& T Coast Guard official website. Available at <http://www.ttdf.mil.tt/ttcg/index.html>, Last accessed November 19, 2005.

sponsor the relevant training to build capability in this vital sector. Trinidad's government cannot escape the fact that heavy investment and development of the island's maritime security apparatus is the only way to ensure continued economic prosperity and the continued supply of these essential services, in light of maritime-based national and trans-national threats.⁵⁹ Therefore the Trinidad and Tobago Defence Force/Coast Guard must continue its efforts to update its equipment, and human and intellectual capital to face the specific security challenges posed in the local energy sector. The Government must articulate, in writing and legislation, after a process of national debate, training, research and in adherence to international practice, agreements and obligations, a national military strategy, defining the direction and vision for military transformation in Trinidad and Tobago. In the words of Richard Clarke, former National Coordinator for Security and Counter-Terrorism, "history is nothing more than a list of events that never previously happened"⁶⁰ and the next security crisis is not going to wait on the government.

⁵⁹ This will continue to be challenging without U.S. support and spaces at its training institutions.

⁶⁰ Tufts E-News. "Assessing A New Security Threat," June 1, 2005. Available from <http://www.tufts.edu/communications/stories/060105AssessingANewSecurityThreat.htm>, Last accessed September 8, 2005.

THIS PAGE INTENTIONALLY LEFT BLANK

IV. THE CONSEQUENCES OF AN ATTACK ON THE LOCAL ENERGY SECTOR

In this chapter, I will look at the impact of a terrorist attack on Trinidad's energy sector. I will illustrate the high costs such an attack could incur on the petroleum corporation, the government, and the entire Trinidad and Tobago economy. I will then show how this sector provides funds for the stability, security, and development of the Caribbean region and what the possible effects would be if the revenue that supports these initiatives were significantly disrupted. I will then outline the possible effect of an attack on the U.S. economy, by looking at natural gas's role in the U.S. economy and the impact of higher natural gas prices, brought about by supply disruption, in the wake of a significant attack in Trinidad and Tobago.

A. THE LOCAL COSTS OF AN ATTACK

A significant attack on a major platform will have several impacts. The most important will be the loss of life. An effective high explosive attack on an administration building can result in the deaths of an average of 120 persons, while a platform attack in the vicinity of 35-50 workers during the day and average of 8 at night.⁶¹ The presence of American and British expatriate workers makes this loss of life at both locations significant. This would be significant because the nationality of some of the targets provides subtle assurance that international news stations will cover the event.

Other ancillary benefits to the terrorists would be the huge costs that the corporations and the government would incur to increase security⁶² on a large scale rapidly, and to fund reconstruction. The cost of an attack and destruction of a local offshore platform can be illustrated in the following crude calculations.

I will use BPTT's Cassia platform as an example that produces natural gas at a rate of 1.6 billion cubic feet /per day. To look at the costs incurred we will assume that

⁶¹ TTDF NEAP study unclassified information.

⁶² The government will tend to spend more than it normally would in a scenario similar to panic buying after the passage of destructive hurricane early in the hurricane season, in anticipation of the next storm.

wellhead gas is sold at \$7 per MCF⁶³ (or 1000cf). We will also assume, based on the information in chapter one, Appendix A, that a 90-day period is the time needed to cap the well and restart production bearing in mind the time taken to ship in expert advice, and specially fabricated materials from overseas, and the difficulty of undertaking repair operations in the unstable and volatile marine environment.

Table 7. Breakdown of Expected Loss of a Major Platform

Item	Cost	Remarks
Lives	Day 35-50 Night 15-25	On average there are 10-15 expatriate workers per platform at night.
Physical cost	250 million USD	If a standby vessel is also destroyed, then an additional 2 million is incurred.
Loss of production (Central processing platform)	1.008 billion USD	The total revenue loss per day equals \$11,200,000.00 USD (1.6 billion/1000 *\$7) by 90 days.
Communications	2 million USD	Media conferences, brand assurance marketing and price share stability media campaigns.
Clean up and disposal	45 million USD	Salvage, towing, and environmental cleanup, taking into account the size of BPPTT ⁶⁴ .
Death Benefits	7 million USD	35 people at an average of \$200,000 each ⁶⁵ .

⁶³ In the wake of the Katrina disaster natural gas prices now hover in the vicinity of 12 USD per Mcf, however 7 USD per Mcf is used as a base price for ease of calculation in the face of fluctuations.

⁶⁴ The disposal of the Brent Spar platform (1995) in the North Sea cost in excess of 43 Million pounds. Information on the Brent Spar available from <http://news.bbc.co.uk/1/hi/world/europe/221508.stm>, Last accessed September 28, 2005.

⁶⁵ According to a RAND study conducted after the September 11th terrorists attacks 2,551 persons were killed and another 215 seriously injured. Survivors of this group received some 8.6 billion dollars, more than 69% coming from the Government for an average of \$3.1 million per victim (the rest came from insurers and charities). Lloyd Dixon and Rachel Kaganoff "Compensating the Victims of 9/11," The RAND Corporation, Washington: 2004. Available from <http://www.rand.org/publications/RB/RB9087/>, Last accessed October 11, 2005.

Item	Cost	Remarks
Loss to Government: The present royalty system is 12.5% of petroleum produced, and a petroleum production levy 3% gross income.	153 million dollars	Tax 1.4 million dollars + levy \$336,000.00 rounded 1.7 million dollars per day x 90 days
Litigation	?	By family members for inadequate security.
Insurance	?	The present deductible is as high as 10 million USD. An attack could double or triple insurance costs.
Environmental Penalties	?	For the spillage of oil, diesel.
Approx. Total	1.06 billion dollars⁶⁶	

N.B. 7 USD per MCF is the market price used in the calculations, it must be remembered that although BPTT Gas is sold to Atlantic LNG at a lower discounted price, the difference is recovered as BPTT has part ownership in Atlantic LNG and the other plants that it sells to.

The Cassia well collects gas from five wells; therefore the average production per well is 32000MCF. Therefore if a single platform is targeted the production loss would be 2.24 million per day or 201.6 million dollars for 90 days.

Total loss using formula =\$533 million dollars.

We can use this figure of 500 million USD as a base line short-term cost of a terrorist attack on an offshore platform. Interestingly this amount corresponds to the approximate cost of procurement of about three 60m offshore patrol vessels. Perhaps this figure could be used an indicator of the type of investment necessary to provide some basic maritime patrol capability to secure the oil fields.

The calculations above (Table 7) do not take into account the loss in investor confidence and other adverse effects that are difficult to quantify in the wake of a terrorist

⁶⁶ “Data for the period 2001-2003 suggests that BPTT contributed an estimated 7.9 billion USD or 55% of the government’s oil sector revenue. The data demonstrate conclusively that variations in Government revenue from year to year may be significantly affected by the developments at BPTT.” The Energy Correspondent “The BP Factor,” Trinidad Express On Line, October 27, 2004. Available from <http://www.trinidadexpress.com/index.pl/article?id=43846257>, Last accessed September 28, 2005.

attack. Also not taken into account are the increased security costs and losses from the emergency shutdowns of other wells that would most likely occur immediately after a terrorist attack, as a precaution. BPTT has shared ownership in Atlantic LNG, some of the Methanol plants at Pt. Lisas, and the Power Generation Company of Trinidad and Tobago. BPTT's losses would be more significant than the costs of the direct attack on the platform. In fact, losing the Cassia platform would represent a 60% loss in the supply of available natural gas to the other feeder industries. Atlantic LNG and other industries to which the gas is supplied would also incur losses, as they would be operating below maximum capacity and they could also possibly shutdown, as it is understood that it is unprofitable to operate the plant below a specific capacity. The Pt. Lisas Industrial Estate depends on natural gas for power, thus this situation could cause a shutdown of operations at the Estate, if even temporarily, in the same way. The Government of Trinidad and Tobago would experience a shortfall in revenues, most likely resulting in an increase in the public sector deficit.

Safety concerns by workers could also trigger low turnouts or strikes until security systems are improved. A strike at the Atlantic LNG plant in April 2004 cost the Government an estimated 2 million USD a day.⁶⁷ Atlantic LNG incurred 190 million USD in standby costs, to continue production of the fourth train (additional capacity) or fourth processing plant at Pt. Lisas.⁶⁸ Losses to the local community, Pt. Fortin were put at 1 million USD per day.⁶⁹

Two recent events provide an example of the possible effects of a significant attack on the energy infrastructure in Trinidad and Tobago. On Monday September 26th, 2005 a bubble developed in the main 24-inch natural gas pipeline, which runs from Beach Field (South Coast) to Pt. Lisas and The Trinidad and Tobago Electricity Commission (via INCOGEN, and POWERGEN the two main power generating

⁶⁷ South Chamber of Industry and Commerce of Trinidad and Tobago, "Economic Growth Needs Industrial Peace," April 2005. Available from www.southchamber.org/initiatives/initiative.aspx?CategoryID=1400&id=2928, Last accessed November 22, 2005.

⁶⁸ The Trinidad Guardian Online, "Package to Cost ALNG \$88M," April 17, 2004. Available from <http://www.guardian.co.tt/archives/2004-04-17/news3.html>, Last accessed September 28, 2005.

companies on the island). This resulted in load shedding across the island, millions of dollars in losses at the Pt. Lisas industrial park, which was closed down over a two-day period, and caused the Police and security forces to go on high alert.⁷⁰

The Petrobras P 36 rig tragedy also provides a stark example of the consequences of an attack on Trinidad's critical gas producing platforms. On Tuesday March 20th, 2001, the Brazilian oil company Petrobras's P 36 rig (the largest in the world) sank into the water after a series of explosions. The rig was located offshore, 120 miles northeast of Rio de Janeiro. The explosion and sinking killed nine oil workers.

Petrobras says its fiscal 2001 earnings could be hurt by as much as \$450m because of the disaster on the platform. The company's shares have lost 7.6% of their value since the explosions. In addition to the costs of lost output, Petrobras now face higher insurance costs. The sunken rig was insured for \$500m and the accident caused panic in the insurance market. The company face fines of more than \$70m for the oil and diesel leaking from the sunken structure, apart from compensation payments to the families of dead crew members and other related costs.⁷¹

Oil union leaders have called for a work slowdown on Thursday to protest poor working conditions and to remember the accident. Petrobras shares closed down 2.3 percent at 49.90 reais (\$23.80) after the company announced the rig had sunk. The P-36 rig cost \$350 million and is insured for \$500 million. The firm should receive the insurance payment in the next six months.⁷²

"All production was halted at P-36 and Petrobras said it could lose \$50 million a month with the rig out of operation. Oil imports would then rise, hurting Brazil's fragile trade balance."⁷³

⁶⁹ Trinidad Express Online, "ALNG, Worker Impasse Hurting Business," March 31, 2004. Available from <http://www.trinidadexpress.com/index.pl/article?id=22953040>, Last accessed August 27, 2005.

⁷⁰ Curtis Williams, "Security Forces on High Alert as Energy Crisis Looms." Trinidad Guardian oOn Line, September 27, 2005. Available from <http://www.guardian.co.tt/news4.html>, Last accessed September 26, 2005.

⁷¹ BBC News On Line, March 21, 2001. Available from <http://news.bbc.co.uk/1/hi/world/americas/1231702.stm>. Last accessed September 28, 2005.

⁷² Reuters News Service, March 21, 2001. Available from <http://www.commondreams.org/headlines01/0320-02.htm>, Last accessed September 28, 2005.

⁷³ Peter Muello, "Brazil Tries to Save Oil Rig," Associated Press. March 20, 2001. Available from <http://lists.econ.utah.edu/pipermail/a-list/2001-March/016183.html>, Last accessed September 28, 2005.

It must be remembered that Brazil is one of the largest countries in the world, and its economy dwarfs Trinidad and Tobago's, therefore the effects of a similar incident would be much larger in Trinidad and Tobago. The local economy has been characterized as inflated by a gas boom and real estate bubble, loosely regulated and lacking in data collection, in order to accurately assess macroeconomic shocks. Jwarla Rambaran⁷⁴ contends that real estate prices in Trinidad and Tobago are linked to the expatriate community and the present gas boom. This has caused a related construction boom and increased consumption generally by increased foreign exchange earnings spent in the local economy. Any major disruption in the energy sector or expatriate flight could cause the bubble to burst.

He indicates systemic weakness in the local financial system, mainly weak data gathering capabilities and loosely regulated finance houses and lending and construction agencies, can cause crisis in the financial system in such an environment. He contends that there was a precedent for this prediction because a very similar situation unfolded in the late 1980s during the collapse of Trinidad's first oil boom when oil prices plummeted. Certainly a major attack will cause all of the planned project's timelines to be extended or reconsidered, incurring further costs and penalties. Most of the government planned initiatives will be hamstrung, including elaborate plans to relocate the Port of Spain port and expand the capital through the construction of a boardwalk and several high-rise buildings on the water line it presently occupies.

Halted production will also act like a consumption tax as expenditures will be kept to a minimum, and the country's foreign reserves will be depleted to stabilize the situation. Consumption and expenditure in all related spheres will be reduced until production can be restarted and security assured. While a significant terrorist act itself cannot snuff out the entire economy in one blow it can make the country, (along with rising crime) less attractive to foreign investment in terms of risk and security costs.

⁷⁴ Jwarla Rambarran, "Financial Crises in T&T: Can They Happen Again ?" Trinidad Express, March 16, 2005. Available from <http://www.trinidadexpress.com/index.pl/article?id=67223206>, Last accessed September 28, 2005.

What is extremely important in this regard is the perception of the population. Gold⁷⁵ contends that while the level of loss from the events of September 11th were in the region of 33-36 billion, the New York economy bounced back relatively quickly because the public perception was that this was a one time, extraordinary event. In light of the series of terrorist bombings in Trinidad and Tobago (and surging crime), a significant terrorist attack could be viewed as a higher level of persistent violence emerging within the society, and could be a turning point for investor flight.

It must also be noted that the perception of investors is also important as to how they measure the risk against the possible revenue to be earned. It can be argued that the Iraqi oil and gas industry is under weekly attack by insurgents in Iraq yet the operations continue. A similar case can be made for Nigeria. However the central thesis remains the same. A significant attack in Trinidad and Tobago would raise costs of doing business in terms of security and insurance, and make it no better in terms of stability. Therefore its attractiveness and comparative advantage in terms of lower costs due to stability and proximity would be reduced. In an expanding gas market, foreign operators have the choice to shift operations to where there are lower costs and larger reserves.

Despite the nation's significant foreign reserves, the size of the island and the small scale of its energy sector will dictate that such an event will be felt severely across the island's economy, which is so heavily reliant on the energy sector.

Jwarla Ramabaran puts it succinctly:

Even the 2004 White paper on Reform of the financial system which touts the ambitious objective of making T&T the pan –Caribbean Financial Centre, was regrettably silent on a systematic assessment of underlying vulnerabilities and analysis of structural reform priorities to make the sector less crisis prone....Weak data also works against carrying out stress tests to determine the ability of the finance system to cope with macroeconomic shocks like a 30 percent depreciation of the TT dollar, a sharp fall in crude oil prices to \$12 dollars per barrel, or a sudden stop in capital inflows....Closer inspection reveals that a few large banks and

⁷⁵ Gold David, "*Economics of Terrorism*." Available from <http://www.ciaonet.org/casestudy/god01/>. Last accessed September 28, 2005.

insurance companies have rising cross country exposures to Eastern Caribbean economies with weak growth prospects and high debt burdens, raising the risk of contagion.⁷⁶

B. REGIONAL ECONOMIC LINKAGES

Trinidad and Tobago's energy driven economy is a critical node in the Caribbean's networked economy⁷⁷ and any incident that significantly affects the economy of Trinidad and Tobago will have a negative ripple effect in the region. Its status as an oil/gas rich country, has thrust the twin island state into assuming many obligations towards the region's economic development and stability, which it has consistently fulfilled. In the following sections, we will look at how Trinidad and Tobago has shouldered its perceived obligation to less developed economies within the greater Caribbean economy, in terms of general exports, petroleum products and in providing development funds and loans to the wider Caribbean economy. We will then look at the effects of a disruption of revenue in Trinidad and Tobago's energy sector and its potential negative effects on the economic stability and security of the region.

Trinidad is one of the wealthiest members of the Caribbean Community (CARICOM). The Caribbean Community concept is based on an agreement, which calls for an economic and political union of the Caribbean island states, similar to the European Union. Exports from Trinidad and Tobago account for 82 percent of intra-regional exports. These exports include petroleum, resources, light manufactured goods, foodstuff, cooking gas, plastics, and construction materials. Many of these items are provided at much lower prices than the other alternative U.S. imports. Exports from Trinidad represent a critical supply of everyday items for the smaller islands. A disruption in this flow could severely effect the day to day life in these islands and cause economic hardship for the average citizen. Accessing substitutes will take time and will be more costly to the average consumer.

⁷⁶ Jwarla Rambarran, "Financial Crises in T&T: Can They Happen Again?" Trinidad Express, Last accessed September 28, 2005.

⁷⁷ There are plans to establish a single Caribbean Market Economy but the move towards implementation has been slow and it is doubtful if this objective will be completed on target for 2008.

Trinidad and Tobago has been consistent in its support to the islands of the Lesser Antilles as they face severe economic adjustment from changes in the globalized banana industry. With the impending withdrawal of preferential market status in Europe in 2007 (their primary market) many of these islands' main cash crops now face difficult competition, and the race is on to prepare for this and diversify their economies to sustainability. A similar fate awaits the regional sugar industry, which is the other mainstay of the smaller islands. Many of these islands, reliant on the banana and sugar industries, have been attempting to capture new niches as Honeymoon destinations in the highly competitive tourist market. Tax holidays and other incentives have encouraged the construction of all-inclusive type facilities like the International Sandals chain in islands like St. Lucia and St. Kitts.⁷⁸ Support from Trinidad and Tobago is crucial to these islands in terms of airlift, soft loans for development and the continuous supply of petroleum at stable prices in the face of exogenous shocks and failing economies. In Dominica for example, Trinidad and Tobago has bought millions of dollars of its government securities in order to keep the island's economies afloat.

Trinidad's government also maintains two funds specifically for regional development, a 100 million USD trade support fund and a 300 million USD poverty alleviation fund, which can be used at the discretion of the Prime Minister. In fact, British West Indian Airways (BWIA), Trinidad's national airline, which is 97% owned by the government of Trinidad and Tobago is the main means of connection to Leeward Islands Air Transport (LIAT), the island hopping airline and main source of transport to these smaller islands. The smaller Antigua based inter island airline LIAT, has been kept alive by the Trinidad's government through cash handouts, and non-repayable loans. In January 2005, the Government of Trinidad and Tobago agreed to fund a 120 million USD

⁷⁸ "The Prime Minister of St. Kitts, Nevis Denzil Douglas traveled to Trinidad yesterday to meet with Manning and press his point that St. Kitts/Nevis should be a weekly stop for BWIA's Toronto – Port of Spain route....He said this was important because St. Kitts/Nevis was attempting to develop its tourism industry which had been limited by lack of air lift....He said: 'As you know we have had serious difficulties with the sugar industry which has been responsible for rising government debt and so we are trying to diversify the economy away from its dependence of sugar and the tourism service industry is one way to diversify.'" Curtis Williams "St. Kitts seeks help from BWIA," Trinidad Express On Line, June 22, 2004. Available from <http://www.trinidadexpress.com/indexpl/article?id=27218602>. Last accessed August 27, 2005.

bailout to the airline from the 300 million USD poverty alleviation fund.⁷⁹ This has followed an earlier financial bailout in 2004 of some 19 million USD.

Financially Trinidad and Tobago's locally owned private sector banks are now dominant in the region. Prior to this, Barbados was the traditional financial centre of the Caribbean. Beginning in 2003, however, Trinidad's Republic Bank acquired controlling interest in the Barbados National Bank, capturing assets of \$3.1 billion and responsibility for some 4000 employees spread across the Caribbean in its branches and subsidiaries.⁸⁰ In 2004 Trinidad's Royal Bank (RBTT) Financial Holdings acquired Barbados' Caribbean Commercial Bank. This complimented RBTT ownership of nine other Caribbean commercial banks spread throughout the Caribbean including the Dutch ABC (Aruba, Bonaire and Curaçao) islands. Trinidad and Tobago's commercial financial sector has acted in the capacity of the region's development banking sector in recent years. Local commercial banks and private conglomerates have repeatedly provided funds to regional governments at more attractive commercial rates than offered by American and international lending institutions. Local conglomerate Guardian holdings (a local insurance group, backed by local commercial banks) and Trinidad and Tobago's Unit Trust Corporation have agreed to be the financial backer behind the proposed intra-Caribbean gas pipeline supplying natural gas to several islands in the region.⁸¹

Trinidad and Tobago has also consistently offered all types of economic assistance to the region. In May 1996, Trinidad and Tobago agreed to underwrite(or write off) 67% or 356 million USD of the 536 million USD claims made against Guyana at the Paris Club. In 1999, 58 million USD was written off, and a further 71 million USD in

⁷⁹ Editorial Trinidad Express Online, January 13, 2005. Available from <http://www.trinidadexpress.com/index.pl/article?id=54863080>, Last accessed September 28, 2005.

⁸⁰ Richard Costas, "Banking on Change," Caribbean *Beat Magazine*, March 2005, 72.

⁸¹ "Guardian Holdings and the New AIC Group Have Agreed to Finance the Feasibility Study and the Project in the Event Commercial Viability is Proven." The Energy Correspondent "Caribbean Gas Pipeline-a Step Closer," Trinidad Express Online, February 25, 2004 .Available from <http://www.trinidadexpress.com/index.pl/article?id=13750270>, Last accessed September 28, 2005.

debt relief is being sought in the near future, based on Guyana's recent qualification for debt relief under the conditions of the IMF and World Bank's International Development associations.⁸²

The supply of petroleum products to the region is perhaps the most important contribution by Trinidad and Tobago. The Government of Trinidad and Tobago sells approximately 50-60,000 barrels of oil a day in the region at subsidized prices. Trinidad and Tobago maintains a regional stabilization fund so that the prices offered to the smaller islands remain the same in the face of global market fluctuations. The total value of the fund is approximately 25 million USD⁸³ and, presently, it assures the sale of oil to the smaller islands at a cost of 32 USD per barrel. Trinidad as highlighted intends to build a trans-Caribbean pipeline linking Trinidad's gas processing plants to Barbados, St. Lucia, Dominica, Martinique, and Guadeloupe to provide gas for power generation.

Trinidad has also agreed to supply Jamaica with natural gas through traditional means (tanker) and at a very competitive price. In early November 2004, the GORTT and the Government of Jamaica signed an MOU calling for a supply of 1.1 million tons of LNG to be shipped to Jamaica annually for twenty years.⁸⁴

Should a significant attack take place in Trinidad's energy sector, halting production or reducing it significantly, a reduction in the flow of natural resources, essential commodities and security services offered to the region could also result. The islands will be forced to seek alternative services in the United States, but this could prove more difficult in the aftermath of a terrorist attack.

⁸² Jwarla Rambaran, "Guyana Deserves Debt Waiver from T&T," Trinidad Express. Available from <http://www.trinidadexpress.com/index.pl/article?id=70789020>, Last accessed September 28, 2005.

⁸³ Address delivered at the opening ceremony of the 26th meeting of the conference of Heads of Government of the Caribbean Community, The Honourable Patrick Manning Prime Minister of Trinidad and Tobago, 3 July, 2005 - Sandals Grande, St. Lucia. Available from <http://www.guardian.co.tt/archives/2005-07-11/news11.html>, Last accessed September 28, 2005.

⁸⁴ "Jamaica and Trinidad Sign 20-Year LNG Agreement," Alexander Gas & Oil Journal, December 9, 2004, Vol. 9, Issue 24. Available from <http://www.gasandoil.com/goc/news/ntl44979.htm>, Last accessed November 21, 2005.

Bryan⁸⁵ contends that a significant part of the wider Caribbean's air transport, tourism, agricultural, mining, and capital markets are dependent on access to the U.S. economy. Any terrorist activity within an island that disrupts or increases the hurdles in accessibility to U.S. markets and imports could have debilitating effects on the region. These security checks and burdens have now become a fact of life and the effects are plainly evident in the airline industry, where several major airlines globally are experiencing economic difficulties, due to increased fuel costs,⁸⁶ security regimens, and reduced passenger traffic. A major attack will amplify these problems significantly, as security and checks are increased as a precaution, particularly if an American oil company and or Americans (expatriates) are targeted in the Trinidad and by extension the Caribbean. In this regard, Bryan points out that tourism, which is seriously affected by terrorism, is the largest earner in 16 out of 28 Caribbean countries⁸⁷ and the downturn in the aviation industry experienced after September 11th is still hurting their economies and commodity markets. Another attack could spell doom for this industry. This would be a double jeopardy situation because tourism⁸⁸ is also one of the key areas selected by the government of Trinidad and Tobago for diversification of its economy and this will definitely also be affected.

⁸⁵Anthony Bryan and Stephen Flynn. "Free Trade, Smart Borders, and Homeland Security: U.S.-Caribbean Cooperation in a New Era of Vulnerability." Miami: The Dante B. Fascell North – South Centre, 2002.

⁸⁶ American Airlines announced Friday it was temporarily cutting flights in markets it serves from its two largest hubs, citing high jet fuel prices that were also blamed for a new round of fare increases. Jet fuel costs have risen 39 percent in the past month. That alone prompted the decision, said Dan Garton, American executive vice president. American said jet fuel cost 91 per cent more Thursday than in September 2004, while crude oil prices had increased just half of that amount, 45 per cent, in the same period." Associated Press. September 30, 2005. Available from <http://abcnews.go.com/business/wirestory?id=1174769>, Last accessed October 3, 2005.

⁸⁷ World Travel and Tourism council (WTTTC). and Trinidad & Tobago Tourism Development Corporation. In Trinidad and Tobago it accounts for 33,171 jobs or .8 percent of total employment. Tourism has increased 10.2 percent between 2003-2004, 65,475 U.S. residents visited Trinidad and Tobago from January to May this year; 8,854 or 16 percent more visitors as compared to the corresponding period last year. Visitors from Europe increased by 6,527 or 18.5 percent, from 35,258 in 2003 to 41,785 in 2004 Available from <http://www.wttc.org/measure/PDF/CaribbeanFULLTSA.pdf>, Last accessed October 8, 2005.

⁸⁸ Major cruise lines Star Cruises and Radisson Seven Seas and two British airlines, British Airways and Virgin Atlantic have already been adding a fuel cost surcharge to passenger tickets, ranging between \$5-60 dollars in the wake of rising costs associated with Hurricanes Katrina and Rita. Reuters. April 18, 2005. Available from <http://www.mycaribbeannews.com/tourism/050418d.html>, Last accessed October 5, 2005.

Although the country has a healthy balance kept in its foreign (3 Billion) reserves and a recently initiated Petroleum revenue stabilization fund, no modeling has yet been done on the effects of such an attack. One can only surmise these funds will be tapped during the immediate aftermath to keep the economy afloat and on track, however, much of this will also be required for recovery and security, including the hardening of the remaining infrastructure. Little focus will be cast on helping others in the region, who will also be affected by this event.

In summary while the actual incident may not be a crucial or decisive blow, the long term after effects could be very serious for Trinidad's economy and debilitating for the rest of the region. One thing is certain the government needs to initiate research and modeling on the effects of such an attack, in order to adequately prepare for such an eventuality. Hurricane Katrina's destructive wrath inflicted on Louisiana and Mississippi has also recently emphasized the point of training, preparations, and modeling for all possible scenarios.

C. REGIONAL SECURITY NETWORKS

A major attack on Trinidad and Tobago's energy sector apart from the economic effects described above could also seriously curtail Trinidad and Tobago's significant contributions to the stability and security of the wider Caribbean region. Trinidad and Tobago's strategic location as the first island off the Latin American coast makes it extremely important in curtailing the flow of arms and narcotics to the other smaller islands whose capability for defense is constrained by limited resources. Trinidad and Tobago's oil wealth has allowed it to purchase, operate, and maintain some of the most sophisticated security equipment in the region to address these local and regional threats. It is Trinidad's strategic location and the sophisticated security systems it maintains which make Trinidad and Tobago's contribution to the region important and significant. Any significant reduction in the revenue stream from the energy sector reduces Trinidad's ability to mount the best possible defense. This translates to procuring and employing the most modern equipment and techniques against these security threats within the territorial boundaries of the island and the wider Caribbean.

Trinidad and Tobago maintains three main Intelligence agencies⁸⁹ coordinated by the National Security Council with very sophisticated surveillance equipment. The Ministry of National Security is presently integrating the information from these three agencies to provide a regionally interfaced (linked to other intelligence clearing houses in the region), real time intelligence capability⁹⁰ for anti-narcotic and anti-terror operations. Coordination of this system is achieved at a national/regional incident command and management center⁹¹. Links have also been established with the Eastern Caribbean Regional Security System to facilitate regional operations. It is easy to see that constant upgrades are required to keep pace with changing technology and new systems adopted by all participants in this system. However, no other island maintains such a coordinated, integrated, and constantly upgraded intelligence and response network, and many regional operations are headquartered in Trinidad and Tobago.⁹² Trinidad and Tobago coordinates CD/CT daily missions in the region as it has the region's most developed capacity to track and interdict targets as they move through the islands. This capability has greatly diminished, though, because of the lack of assets possessed by the TTCG. Interdiction is usually carried out when the target of interest enters the waters under the

⁸⁹ The three agencies are the Strategic intelligence Agency, Strategic Services Agency and the office of the Prime Ministers secretariat to the National Security Council. The TTDF also has a Military Intelligence Unit.

⁹⁰ The U.S. Drug Enforcement Administration's office in Port of Spain and newly created Special Anti Crime Unit of Trinidad and Tobago SAUTT (a unit similar to the United States' Federal Bureau of Investigation) are linked to this system. Other U.S. field offices, such as the United State's El Paso Intelligence Centre (EPIC), and Joint Interagency Task Force (JIATF) South facilities can also interface with this system. Scotland Yard, and the Federal Bureau of Investigation, the French Military Intelligence and Customs, and UK Customs field offices can also be communicated with through the network. Information can be passed through the network (once permission is gained from the local embassies) to any local patrolling warships from Trinidad and Tobago, France, the United Kingdom, or the Netherlands in the Caribbean to prosecute counter-narcotic and counter-terror CD/CT missions.

⁹¹ "We established an Incident Co-ordination center to facilitate information sharing and a more effective response by law enforcement officers. Several persons from a number of specialized agencies have been selected to staff the center." 2005 National Budget presentation by the Honourable Patrick Manning Prime Minister of Trinidad and Tobago, House of representatives, The Red House, Port of Spain, 8 October 2004.

⁹² Operation Conquistador was simultaneously launched on March 10, 2000, in Panama, Colombia, Venezuela, Bolivia, Ecuador, Suriname, Trinidad & Tobago, Montserrat, Dominica, St. Kitts, Nevis, Antigua, Anguila, St. Martin, British Virgin Islands, Barbuda, Grenada, Barbados, St. Vincent, St. Lucia, Aruba, Curacao, Jamaica, Haiti, Dominican Republic, and the Commonwealth of Puerto Rico. Command and control of the operation was executed from the DEA Caribbean Field Division in San Juan, PR, with forward command posts in Trinidad & Tobago. Source United States Drug Enforcement Administration official website Available from <http://www.usdoj.gov/dea/major/conquistador.htm>, Last accessed October 15, 2005.

jurisdiction of Trinidad and Tobago. In this vein, Trinidad and Tobago plays a significant role in regional law enforcement and information sharing with the smaller islands security agencies.

The Trinidad and Tobago Coast Guard, by agreement, has responsibility for all search and rescues taking place in the Southern Caribbean up to St. Lucia and out to Barbados, (and area of some 76,000 square miles). For this mission it maintains a rescue coordinating center at its headquarters at Staubles Bay. TTCG aircraft and surface units routinely execute regional search and rescue missions and also carry out CD/CT surveillance in this area when on patrol. This arrangement dates back to the 1960s when the TTCG was the only regional unit, which had the facilities and assets to lend assistance to the region. This agreement continues, and the unit has to devote equipment and time to this continuous mission.

Exercise Tradewinds is an annual exercise involving the region's militaries. Each year at the planning conferences an island is chosen as the host country for that year's serial. The exercise generally involves basic training for the smaller islands newly recruited cadres and involves fire fighting, damage control, counter-drug, counter-terror and disaster relief, and mass casualty operations (like cruise ship fire, natural disaster or terrorist attack). It encourages the region's forces to work under a joint headquarters and to work together to resolve security issues that are likely to occur in the region. The exercise is partly sponsored by U.S. Southern Command and there are usually British and Dutch contingents, which also participate.

The Trinidad and Tobago Defense Force along with the Jamaican Defense Force and the Armed Forces of the Dominican Republic are among the larger and more capable units and they usually contribute the most forces to these exercises. Trinidad and Tobago usually provides the bulk of the instructors and operations staff at the headquarters as well as a large cadre of infantry, air, and surface assets. Trinidad and Tobago is usually asked to transport and host other nations' military personnel on their assets so as to allow other participants to benefit from participation in the higher learning modules despite not having the resources themselves. This exercise is an example of the close coordination in the region but also illustrates the unequal military capacity of its participants. In the

context of CARICOM, Trinidad and Tobago is expected to respond to threats in the region quickly and decisively, being one of the few militaries in the region with such a capability.

Trinidad and Tobago training teams have trained the Barbados, Antigua Defense Forces with mobile training teams in these small islands. Trinidad has provided officers on loan along with Jamaica to the Antigua Barbuda Defense Force on secondment to build capacity and systems in these newly formed units. Cadets from Antigua, Barbados and St. Kitts are also enrolled at the TTDF officers' training school at Crows Nest Chaguaramas. In summary, Trinidad and Tobago's economy has allowed it to be a benevolent military neighbor to the smaller islands in the region. Trinidad and Tobago has constantly provided all type of assistance to the region in this capacity. However it must be noted that the TTDF operates consistently with a substantial deficit in manpower, and at crisis times, all of these ancillary exercises, training secondments and assistance to the region is terminated. Any security situation at home that requires a large-scale operation or presence means that little assistance can be offered to the region.

D. STABILITY AND RECONSTRUCTION EFFORTS

Trinidad and Tobago has been a key facilitator of stability and reconstruction efforts in the region. Haiti has been a perennial problem and a certain level of responsibility comes with assuming leadership in the region. This was demonstrated in 1995 when Trinidad provided the majority of forces and led the CARICOM contingent (on rotation) in the UN supported intervention force in Haiti. TTDF personnel stayed in the country for a two-year period and acquired valuable experience in these types of operations. Diplomacy plays a large role in these operations. A good example is the recent request by the United States during a Manning/Rice meeting⁹³ in December 2003, when the U.S. asked that Trinidad and Tobago take over from the United States in

⁹³ "Manning Held Talks with Bush and Other U.S. Officials during a Five Day Visit to the United States that Ended Friday." Michael Smith, "Premier Tells U.S. President His Country is Moving to Protect Energy Supplies from Terrorism," Associated Press, December 20, 2005. Available from http://web.lexis-nexis.com/universe/document?_m=d8cle434da285e12d82b07d684bcb390, Last accessed December 2, 2004.

security operations in Haiti under the auspices of the United Nations and CARICOM. This request was accepted and deployment preparations initiated but never fulfilled.⁹⁴

Trinidad and Tobago fortunately lies under the Hurricane belt and has consistently been spared the catastrophic destruction associated with recent crop of storms like Ivan (2004), Katrina, and Rita (2005). As the economic big brother in the region, and consistently among the few islands unscathed after the passage of these systems, Trinidad and Tobago has become a regional leader in stability and reconstruction operations to other affected islands.

In 2004, the TTDF led a three-month light battalion-sized, stability and reconstruction operation in Grenada. The TTDF Task Force Group Grenada comprised 238 soldiers, several vehicles, four aircraft, three helicopters (in several sorties from Trinidad) three heavy lift vessels and other associated patrol vessels from the Coast Guard. The TTDF worked with Grenada's National Emergency Relief Organization and the Joint Services Grenada Group, a smaller joint group of Caribbean troops from various islands under the coordination and direction of Colonel Milliard TTDF.⁹⁵ This operation was transported and logistically supported by the Trinidad and Tobago Coast Guard using leased offshore platform logistics vessels (from the oil industry) and other leased light container vessels.⁹⁶ These efforts complimented the 10 million USD in direct aid given to Grenada by Trinidad and Tobago.

In providing assistance to Grenada, the Trinidad and Tobago Defense Force personnel involved reprised a similar role that was performed in Jamaica on a more limited scale during Hurricanes Gilbert and Hugo (1988 and 1999). Ivan struck Grenada

⁹⁴ This was due to Trinidad's and CARICOM's subsequent disapproval of the alleged forceful ousting of President Aristide by U.S. diplomatic and military forces, and a refusal to become involved in Haitian affairs until the matter was investigated.

⁹⁵ Assistance was also received from Venezuela and the French Navy.

⁹⁶ The disaster provoked a comprehensive response and contingents from the Trinidad and Tobago Police Service and the Government owned Trinidad and Tobago Electricity Commission and community, conservation and environmental groups. These groups were transported, and logistically supported by the TTDF as they worked alongside TTDF personnel in restoring essential services to Grenada. Local NGO's and citizen groups garnered massive amounts of aid, which was transported by the TTCG.

on September 7, 2004 and the pictures of the destruction came from the first TTDF units who over flew the island hours later to conduct an assessment in preparation for deployment.

E. FUTURE REGIONAL SECURITY INITIATIVES

The area that will be most affected by a reduction in Trinidad's oil revenue is the government's future plans for the TTDF as a regional force. The present government has become keen to develop the Defense Force as a key part in its wider foreign policy as economic leader of the Caribbean, now that funds are available. This involves major transformation within the TTDF in order for it to be able to project surveillance capability and power within the maritime region of the Caribbean to secure the planned intra-Caribbean pipeline.⁹⁷ However, the government of Trinidad and Tobago has never committed its national security strategy or regional security objectives strategy to paper. The Defense Force, in its quest for modernization, efficiency, and transformation to a force with national relevance and regional purpose, has used an inductive process, (which it has been called on to do from time to time) in collaboration with an analysis of the foreign policy and economic goals that the Trinidad and Tobago government has outlined, to shape a structure and capability matrix for itself. This has been tied to organizational goals, growth, and equipment acquisition in keeping with modern practices of military transformation and presented in a document called Vision 2020. This has been submitted to the Government for review and is awaiting approval in keeping with its larger National 2020 vision plan.

This Vision 2020 document calls for the Defense Force to develop naval task groups with vessels capable of regional troop lift, disaster relief, and command and control facilities to operate with patrol escorts and auxiliaries in joint regional operations. The Trinidad and Tobago Army (the land forces component of the Defense Force) is also developing a combined arms, battalion-sized, expeditionary force in order to support this concept and it is expected that it will work in a joint command concept with the task groups. The Coast Guard is presently recruiting new officers (the 2020 document calls for

⁹⁷ The 2020 plan calls for a phased increase from just under 4000 personnel to 16,000 personnel over 10 years just to undertake the current missions effectively and to be able to provide a battalion-sized presence in the region on call.

a force of 3000 by 2020, the present strength is 1040) and sourcing further training. The unit has recently committed and funded a series of officers in rotation, to attend expensive courses at Royal Navy institutions during the 2005-2006 period, to facilitate the operation of these larger assets when they arrive in early 2007.⁹⁸ Along with these new assets on order, the unit has recently begun training some of its officers at U.S and Canadian military institutions in peace-keeping and stability and reconstruction operations, to empower its officer corps with the skills to support and command these types of missions, in a joint force-oriented TTDF. It has also taken up regional counter-terrorism fellowships and courses in order to keep its officers abreast of regional developments and U.S. responses to terror and drug trafficking in the region.

The Government of Trinidad and Tobago has recently committed to buy three 80 meter offshore patrol/regional patrol corvettes. The specifications for the regional patrol vessels call for sophisticated command and link systems and will also carry ocean capable high-speed interceptors, helicopters and Special Forces detachments, to participate in joint multi-national missions including disaster relief. Data, imagery, and video systems, which can interface with the other First World vessels and U.S. command centers operating in the region (U.S. Coast Guard, and JIATF South), will also be included at considerable expense.

The Government has also recently announced its intention to purchased maritime coastal radar systems for the islands of the Eastern Caribbean, which can be linked to TTCG and other patrolling assets. Procuring, installing and commissioning these sites and maintaining a patrol schedule to serve them is a labor intensive and costly initiative. Such an initiative requires more manpower, training, and is predicated on uninterrupted revenue streams, being generated by the energy sector.

⁹⁸ While the present crime situation and growing incidence of improvised explosive devices bolster and possibly hasten the motivation to acquire these new assets, a significant terrorist attack may wipe out the funds necessary for their purchase, operation and maintenance. If they are still acquired after such an attack, the ability to assist the region and their regional role may quickly disappear, as a traumatized Government and population will most definitely confine them to surveillance and patrol solely around the island. The sooner they can be acquired, the better, and the same goes for planned purchase of six fast patrol boats for local patrol. These assets are essential and are urgently required to present a credible barrier to the arms smugglers who contribute to the crime and terrorism within the island.

In order to project surveillance capability throughout the region the GORTT has had to surmount the international law and jurisdictional problems by using bilateral and regional agreements. The Government of Grenada signed a Memorandum of Understanding between the Government of Trinidad and Tobago and Grenada to allow Trinidad and Tobago patrol assets to conduct maritime security patrols around Grenada and armed security patrols within its territory after the destruction wrought by Hurricane Ivan in September 2004. This type of “facility” may also be placed in the gas supply treaty and will be the vehicle for the TTDF to undertake regional security in other jurisdictions and territories within the Caribbean.

There has also been a lot of cooperation within the region to develop protocols and mechanisms that would allow a comprehensive regional response to the security issues affecting the region. Regular meetings of the CARICOM committee on regional crime and security focus on the implementation of frameworks previously agreed upon. They include a Legal Framework for Mutual Assistance, Regional Justice Protection, Maritime Cooperation, Border Security and Development of the Regional Intelligence and Information Sharing Mechanism, and a Coordinating Information Management Authority (CIMA) to handle the information developed within the system.⁹⁹

In conclusion, Trinidad and Tobago’s strategic, geographic location has produced many blessings: sanctuary from natural disasters, access to a geological hub of various petroleum resources and easy access to Latin American and North American markets. The islands’ leaders must however not only safeguard these blessings from the man made disasters of terrorism and drug trafficking, but also assist those in the region who are less fortunate. Trinidad and Tobago is the dominant trade partner in the region and the financial center of the Caribbean and Trinidad’s benevolence to the region has significantly contributed to development in the region. If Trinidad and Tobago’s prosperity were to deteriorate it will surely be reflected in the reduced amount of

⁹⁹ Special Meeting of CARICOM Ministers Responsible For National Security and Law Enforcement, Port of Spain, May 10, 2005.

assistance it can offer to the region and possibly the termination of some of the essential services presently offered in terms of airlift support and petroleum products and basic commodities.

The worst case scenario would be an attack on Trinidad's energy sector during the passage of a destructive hurricane in the region, and precisely when the region needs the most help. Such an attack could also place severe cost, convenience, and security premiums on Trinidad's ability to assist its neighbors in terms of funds and with a heightened local threat scenario, little motivation and ability to commit troops to the region. Hurricane Katrina and Rita's paths show that the United States may not be in a position to help either.

F. THE IMPACT OF AN ATTACK ON THE U.S. ECONOMY

Natural Gas is used in the manufacture of a variety of products that range from aspirin, and steel, to plastics, and processed food. It is also used in large quantities by commercial establishments for heating and air-conditioning (60% of the heating systems in the United States use natural gas).¹⁰⁰

Natural Gas is also used to generate 25% of the electricity used in the United States. It is estimated that just under 2000 new power plants are needed to meet future energy demand over the next ten years and this will significantly affect demand for natural gas. The two other major industries in which natural gas is essential are the chemical manufacturing and fertilizer industries.¹⁰¹

Figure 2 provides more detail on natural gas's role in the U.S. economy and it also shows the powerful inflationary effect that a supply disruption could trigger.

¹⁰⁰ Variable fluctuations because of climatic dynamics, i.e., longer, colder winters and hotter, longer summers also complicate the demand system.

¹⁰¹ "Consumers will pay \$70 billion more for natural gas in 2003 than in 2002. Americans are beginning to take notice. A national poll conducted on behalf of the American Chemistry Council found that 87% of the public are concerned that higher gas prices will affect them and their families. Last year, the U.S. chemical industry's natural gas bill increased by \$6.5 billion." Natural Gas Crisis "The Energy Crisis," Available from http://www.accnewsmedia.com/entry/acc_naturalgas.asp. Last accessed November 28, 2005.

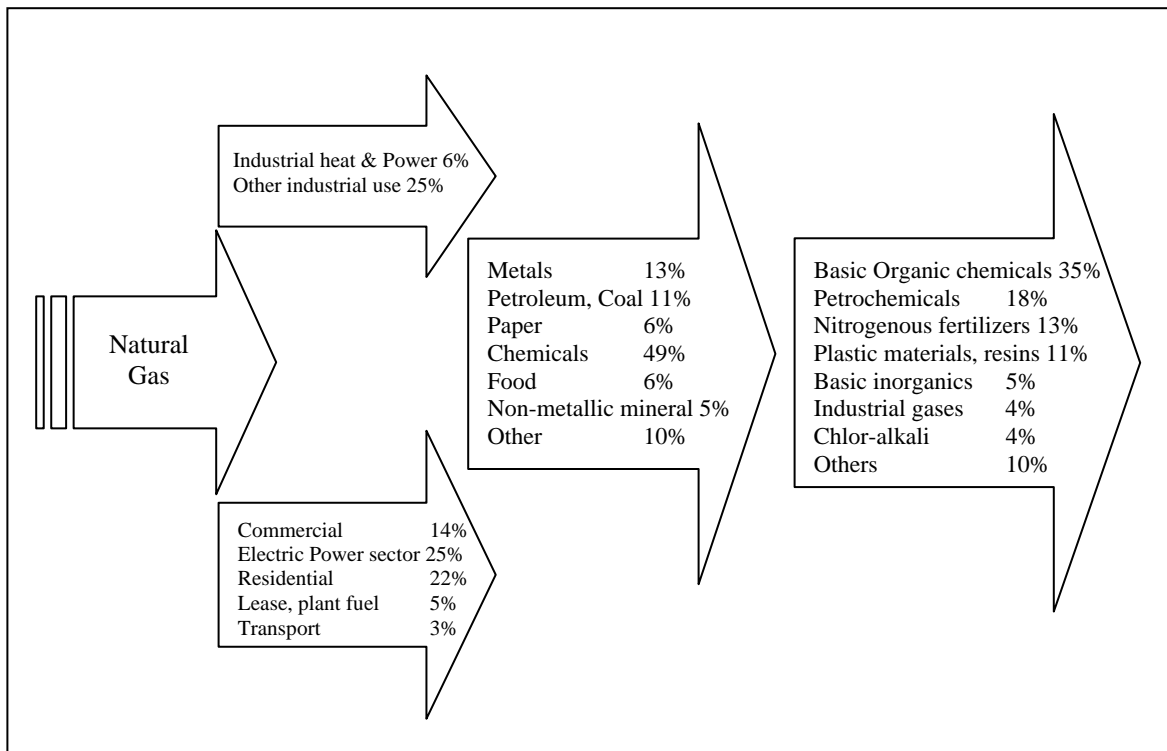


Figure 2. Natural Gas's Role in the U.S. Economy (From: Sergey Vasnetov, and Zoya Kovenya, "Higher Natural Gas Prices will Decrease Profitability of U.S. Petchem Industry," Oil & Gas Journal, April 28, 2003, p. 52)

G. THE PRESENT U.S. GAS MARKET

While oil prices have increased by 60% over last year's prices, natural gas prices have risen by 84%. This rise in gas prices has been attributed to increased demand, which has increased faster than supply. There are several factors that account for this increasing demand. Growth of the air condition industry and switches from traditional fuels (like coal and oil) within it to natural gas, as a fuel source for power generation¹⁰² is one area of demand growth. Pressure by environmental groups and encouragement by the Federal Government to use natural gas, in an effort to switch to cleaner burning fuels and to reduce oil dependence are other factors. In this vein the majority of new plants today are

¹⁰² Keith Rattie, President & CEO, Questar Corporation. Testimony before Committee on Energy and Natural Resources, United States Congress. House of Representatives, February 25, 2003.

Natural Gas powered.¹⁰³ “The EIA in its recent Annual Energy Outlook 2003, predicts that U.S. natural gas consumption will increase at an average rate of 1.8 percent per year to about 35 trillion cubic feet per year in 2025, from 22.7 in 2001. It is expected in the period 2005-2020 that imports of LNG will increase to about 11% of the total demand for natural gas in the United States from its current weight of 3%. This represents a very large increase in actual volumes as represented in Figure 3.

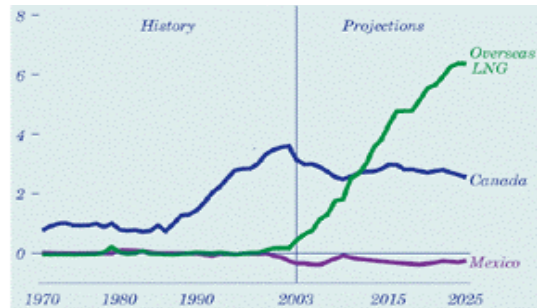


Figure 3. U.S. Net Imports of Natural Gas 1970-2025 (trillion cubic feet) (From: The U.S. Department of Energy)¹⁰⁴

One of the main factors affecting supply is declining production from domestic wells, mainly in the Gulf of Mexico, the majority of which are reaching maturity. There is also a lack of LNG import receiving infrastructure in the United States relative to the demand. If the estimated demand growth is accurate, this needs to be addressed quickly in order to reduce upward pressures on prices in the event of a shortage. Only three new terminals have been authorized on the U.S. coastline by October 2005, although there were roughly thirty applications pending. The main obstacles are litigation and injunctions forced by community environmental groups who fear a terrorist attack, accident, or environmental spill impacting the communities adjacent to proposed sites for new facilities.

¹⁰³ Wanda Avila “Electric Perspectives: The Tide Rises for LNG,” March/April 2002. Available from http://www.eei.org/magazine/editorial_content/nonav_stories/2002-03-01-tide.htm, Last accessed 11 October 11, 2005.

¹⁰⁴ .Energy Information. Administration’s Official Website. Available from <http://www.eia.doe.gov/oiaf/aeo/gas.htm>, Last accessed October 14, 2005.

According to Lee there are approximately 60 LNG plants/facilities being built across the globe. He says, however, most of the facilities being built in Iran, Norway, Russia, Yemen, Egypt Venezuela, Peru, and Equatorial Guinea, and expansion of already existing trains in Qatar, will not be on line until 2010.¹⁰⁵ This makes gas from Trinidad and Tobago all the more important in the near term because most of its infrastructure is already in place. However even when these sites are commissioned, gas from Trinidad will still be cheaper by virtue of its close proximity to the United States. Most of the discoveries of natural gas in the United States are in environmentally sensitive areas, which prohibit development wells. This makes domestic supplies of gas difficult to generate in the short term, principally because of the powerful environmental lobby in Washington. "At present, 80 percent of the offshore areas are off limits to oil and gas development. In addition, these areas under moratoria are estimated to hold at least 79 trillion cubic feet of natural gas."¹⁰⁶ These factors do make development and production from these fields possible in the short to medium term and restricted and expensive in the long term.¹⁰⁷

Weather systems (tropical storms and hurricanes) disrupt production in the Gulf of Mexico, creating shortfalls and delaying delivery from source countries. The contracted shipments that resume after the passage of these systems become insufficient in the face of rising demand caused by halted production. Also, storm damage often precludes their offloading.¹⁰⁸

Hurricane Ivan's damage took six months to be fully repaired and this can be used as a rough benchmark for the length of time it takes before production is returned to

¹⁰⁶ In addition to extant plants in Brunei, Indonesia, Oman Australia, Libya, Algeria, Nigeria, United Arab Emirates and Malaysia. Henry Lee, "*Dawning of a New Era: The LNG Story*," Environment and Natural Resources Program (ENRP) Discussion Paper 2005-07, John F. Kennedy School of Government. Cambridge, MA: April 2005.

¹⁰⁶ Statement of Noly Theriot, Director, Congressional affairs, National Ocean industries Association, U.S. Senate, Committee on energy and natural resources, *Natural Gas Symposium*. Washington, D.C.: January 24, 2003.

¹⁰⁷ Keith Meyer CMS Energy's Vice President of Marketing. "It might be cheaper for us to import LNG than to develop these reserves," he speculates. And even if legislation to open places like the Alaska National Wildlife Refuge was passed users would not see that gas for several years, due to political grid lock and the need for new pipelines to transport the gas." Ibid. p. 2.

¹⁰⁸ Energy bulletin.net. "Energy Bulletin: Other Energy Headlines," September 27, 2005. available from <http://www.energybulletin.net/9216.html>, Last accessed October 7, 2005.

normal capacities.¹⁰⁹ Hurricane Katrina is an example of the supply constricting effect these weather systems can have on the U.S. gas market. Gas futures prices spiked from \$1.52 in October to a new high of \$12.66, the largest hike on record in response to the news that Hurricane Rita was headed for the Gulf. When the storm did pass it caused the shut in of 8.05 billion cubic feet of gas and high prices.

Table 8. Imports of LNG into the U.S. 2003 by Source, in Billions of Cubic meters
(From: Source BP Statistical Review, Taken from Oil and Gas Journal /January 24, 2005

	T &T	Oman	Qatar	Algeria	Nigeria	Malaysia	Total
US	10.71	0.24	0.39	1.51	1.42	0.08	14.35

The last area that affects supply is the state of development worldwide. Most of the other source countries' infrastructure is still in development. Another factor is that the U.S. does not enjoy positive international relations with some of the potential source countries like Venezuela, Iran, and Libya.¹¹⁰ Increasing supply from these countries comes along with considerable political considerations and opposition from lobby groups, particularly human rights and pro-democracy lobby groups. What makes supply from Trinidad critical is that it is close and that it has the most infrastructure and capacity in place to meet U.S. shortfalls quickly as illustrated in Table 8.

H. IMPACT ON THE U.S. ECONOMY

The U.S. natural gas market is highly responsive to supply changes because supply mechanisms are limited as highlighted above. A reduction in the normal supply chain from Trinidad and Tobago, (which could be caused by a terrorist attack) in the face of rapidly growing demand will drive up prices radically.

¹⁰⁹ Heather Timmons and Vikas Bajaj "BP Details its Damage from Hurricanes,' The New York Times, October 5, 2005. Available from http://www.nytimes.com/2005/10/05/business/05oil.html?ex=1131163200&en=eaa45b4ccdf06424&ei=5095&partner=REPRIS&excamp=reprise_engine=google_kw=natural_gas_ag=B_BP_Details_Damages_From_Hurricane_cn=100505, Last accessed October 12, 2005.

¹¹⁰ On July 24, 2001 an Iranian warship threatened a BP oil exploration ship which it claimed was in Iranian waters. "Chronology of World Oil Market Events 1970-2003." Available from <http://www.eia.doe.gov/cabs/chro.html>, Last accessed October 3, 2005.

“Shipping costs, which vary with distance, add to the cost of LNG. Tankers must offload their cargo within a certain period of time, since a percentage of the extremely cold liquid burns off each day, making long hauls at sea unprofitable.”¹¹¹ Alternate suppliers¹¹² like Nigeria and Algeria will be more expensive alternatives because of the increased insurance costs involved: increased distance to market, delays in bumping up production to meet U.S. demand and possible increased security costs (see Table 9 for a comparison of prices from different suppliers.).

Undoubtedly, if supplies of LNG from Trinidad and Tobago are curtailed due to a terrorist attack, replacement supplies will cost more, take longer to procure, and will originate from riskier climates.¹¹³

Table 9. Shipping Prices to U.S. LNG Terminals (dollar per Mmbtu) (From: EIA Global LNG Study except Gas Supply (Taken from Oil & Gas Journal, May 17, 2004, p. 57)

From	To	Shipping	Regasification	Liquefaction	Gas Supply	Total
Trinidad	Elba Is., Ga	0.32	0.30	1.09	1.00	2.71
Trinidad	Everett, Mass.	0.35	0.30	1.00	1.00	2.74
Trinidad	Cove Point	0.35	0.30	1.00	1.00	2.74
Trinidad	Lake Charles, La	0.38	0.30	1.09	1.00	2.77
Algeria	Cove Point	0.57	0.30	1.09	1.00	2.96
Norway	Cove Point	0.61	0.30	?	1.00	3.00
Algeria	Lake Charles, La	0.72	0.30	1.09	1.00	3.11
Nigeria	Lake Charles, La	0.93	0.30	1.09	1.00	3.32
Qatar	Lake Charles, La	1.58	0.30	1.00	1.00	3.97
NW Australia	Lake Charles, La	1.84	0.30	1.09	1.00	4.23

¹¹¹ “For contracted gas, unit prices are derived from nautical distances. The more days it takes the vessel to travel to arrive at its destination, the higher the unit costs....Project closer to major consuming markets will have a cost advantage over those more distant, since they will be paying less for shipping.” Henry Lee. *“Dawning of a New Era: The LNG Story,”* Environment and Natural Resources Program (ENRP) Discussion Paper 2005-07, Belfer Centre for Science and International Affairs (BCSIA). John F. Kennedy School of Government. Cambridge, MA: April 2005.

¹¹² “Canada, which contributes about 94% of all gas imports, will probably be unable to boost its exports enough to keep up with increasing U.S. demand, according to the Canadian Gas Potential Committee. Production in Alberta, which accounts for 85% of the country’s gas output, is expected to peak in 2003 and then decline by 2% annually from 2005 to the end of this decade.” Wanda Avila “Electric Perspectives: The Tide Rises for LNG,” March/April 2002. Available from http://www.eei.org/magazine/editorial_content/nonav_stories/2002-03-01-tide.htm Last accessed September 28, 2005.

¹¹³ Ibid. “That usually means LNG imports from Trinidad, which is 2200 miles away from the same terminal, are more attractive than imports from Algeria, 3,800 miles away.”

It took approximately 21 days for the U.S. Coast Guard to lift its ban on LNG tankers entering the Everett LNG facility in Boston after the events of September 11th.¹¹⁴ If a significant attack were to occur in Trinidad and Tobago it is certain that local operations will be halted for a similar period until an investigation can be carried out. It is also highly likely that a temporary, ban, restriction, or some protocol, will be implemented at U.S. destination ports for tankers inbound from Trinidad.

Costs will also increase because of delays in activating the storage and reserve systems. Should the attack occur during the winter months, it is likely that the market prices will spike significantly in this high demand period.¹¹⁵ The LNG market is evolving and long-term contracts are giving way to more spot cargoes. Twenty five percent of the gas imported into the U.S. is on a spot cargo basis, because of the variable fluctuations in demand described above. This speculative factor in the face of media coverage of the event will also drive up prices generally.¹¹⁶ Although there is more room for arbitrage, (that is shipments consigned to one port can be rerouted to another), this incurs additional costs and penalties for not fulfilling original contracts.¹¹⁷

U.S. LNG receiving terminals are located on the East (Boston) and South East coasts (Louisiana) and many storage facilities are located in this area. If an attack on the energy infrastructure is coordinated with an attack on pipeline grid that supplies gas in the US, Southwest and Western states will have to be fed by truck supply, which will

¹¹⁴ Ibid.

¹¹⁵ "For example a cold snap in February 2003 pushed prices on the East Coast to \$20.00 per mbtu, nearly tripled the \$7.22 price in Wyoming." Joint Economic Committee, Chairman Robert F. Bennet: The pressures on Natural Gas Prices, October 6, 2004. Stephen Brown, "U.S. Natural Gas Markets in Turmoil," Testimony Prepared for a Hearing on the Scientific Inventory of Oil and Gas Resources on Federal Lands: The Sub Committee on resources U.S. House of Representatives, Thursday, June, 19, 2003.

¹¹⁶ On October 12 2000 Henry Hub natural gas price hit a record high of \$5.78 BTU after reports circulated of a terrorist attack on the USS Cole. U.S. Department of Energy. Energy information Agency, "Chronology of World Oil Market Events 1970-2003," Available from <http://www.eia.doe.gov/cabs/chro.html>, Last accessed October 3, 2005.

¹¹⁷ Chris Neil, "2003 shows spot cargoes, tankers dictate U.S. LNG supplies, not terminal capacities," Oil & Gas journal Vol. 102 Iss. 14, p. 70 The current capacity of the four existing terminals are Everett, Massachusetts; Cove point, Maryland; Elba island, Georgia; and Lake Charles Louisiana totals 3.72 Bcf of deliverability. a. Refits to the Elba island and Lake Charles facilities will add another 1.34 Bcf but are not expected to be on line in the near term. Only three new facilities have been approved, Cameron, Freeport, and Sabine. Located along the Gulf coast. These and eight others in the filing process for authorization are not expected to be on line for a number of years.

further drive up prices in additional costs. There is no Strategic Reserve of Gas so such a situation will be most difficult to recover from.¹¹⁸

Natural Gas prices hikes, increased security and insurance costs in the petroleum industry, and temporary myopia could cause hikes in oil prices and thus affect the entire economic system. A recent U.S. Economic Statistics Administration study “The Macroeconomic Effects of High Natural Gas Prices,” in 2005 produced the following simulations, which appear as Tables 10 and 11. They highlight the negative effects of high prices on the U.S. economy.

Table 10. Sectoral Price Impacts of Higher Natural Gas Prices (From: Inter Industry Economic Research Fund (INFORUM) Estimates Using LIFT Model Simulation)

Cumulative % change from actual

Sectors	2000	2001	2002	2003	2004
Agriculture, Forestry fisheries	0.63	1.18	1.23	1.41	1.55
Mining	15.47	18.57	14.82	19.90	20.32
Construction	0.08	0.30	0.41	0.67	0.83
Manufacturing, non-durables	1.04	1.39	1.53	1.73	1.87
Manufacturing, durables	0.87	1.07	0.87	1.21	1.42
Transportation	0.12	0.28	0.50	0.70	0.80
Utilizes	8.23	9.26	8.38	10.55	10.85
Wholesale and retail trade	-0.06	1.18	0.97	1.08	1.22
Finance Insurance, real estate	0.52	0.99	1.06	1.24	1.37
Services	0.21	0.40	0.58	0.79	0.94

¹¹⁸ Neal Adams, *Terrorism& Oil*. Tulsa. Pennwell: 2003, pp. 112, 113.

Table 11. Sectoral Employment Impacts of Higher Natural Gas Prices (From: INFORUM Estimates Using LIFT Simulation)

Cumulative change from actual, Thousands of jobs.

Sectors	2000	2001	2002	2003	2004
Total Civilian jobs	-306.0	-527.1	-563.6	-528.8	-518.2
Agriculture, forestry, fisheries	-9.9	-17.3	-17.9	-16.1	-15.7
Mining	-1.8	-0.2	-2.1	-2.7	-3.7
Construction	-13.1	-30.9	-81.0	-51.3	-48.0
Manufacturing, non-durables	-16.5	-34.9	-38.2	-37.6	-38.6
Manufacturing, durables	-14.0	-43.7	-58.4	-59.4	-51.6
Transportation	-3.6	-5.7	-7.5	-7.6	-6.8
Utilities	1.9	16.5	7.5	7.0	6.1
Wholesale and retail trade	-70.8	-145.5	-118.2	-112.7	-113.7
Finance, insurance, real estate	-37.0	-59.4	-49.6	-54.4	-56.8
Services	-141.2	-206.0	-198.2	-194.0	-189.4

In another study, Brown¹¹⁹ suggests that oil and natural gas prices have a tendency to move together and thus, increase in natural gas prices could correlate to an increase in oil prices, which will also increase the inflationary cycle catalyzed by a terrorist attack on Trinidad and Tobago energy sector.

In conclusion, the worse possible scenario, or from a different perspective the most opportune time for a terrorist to attack the energy infrastructure in Trinidad and Tobago is during the winter season in the United States, when a major hurricane is simultaneously moving across the Gulf of Mexico from the Caribbean. This is the time of greatest demand but least domestic production. It is possible that a hurricane could also disrupt ship movements and worsen the supply side of the equation. If this were

¹¹⁹ During previous oil shocks, natural gas and oil prices have generally moved together. Prices for other primary energy resources were relatively unchanged. Consequently, the measured effects of oil shocks may represent the combined effects of both oil and natural gas price movements. Natural gas accounts for about 40% of total oil and gas consumption, so 40 percent of the measured effect of an oil price shock may be a rough approximation of the effect of a natural gas price shock by itself. On that basis, a rough estimate is that sustained doubling of natural gas prices would reduce U.S. GDP by 0.6 to 2.1 percent below what it would otherwise be. Stephen Brown, "U.S. Natural Gas Markets in Turmoil," Testimony Prepared for a Hearing on the Scientific Inventory of Oil and Gas Resources on Federal Lands: The Sub Committee on resources U.S. House of Representatives, Thursday, June 19, 2003.

coordinated with an attack on the pipeline system within the United States, this would significantly increase the effects of the attack and be the worse possible scenario. The next two years (2005-2007) are perhaps the most critical period for such an attack. Most LNG plants in Algeria and Nigeria and the planned new receiving terminals in the United States will not be on line until this time.

David Gold (2004) says that terrorist groups also behave in a similar cost constrained manner and look for opportunities to maximize their opportunity costs. "Terrorists groups behave as if they are cost constrained, and therefore choose tactics they believe to be cost effective. "If the relative costs of one avenue over another are raised, or the perceived benefits change, timing and tactics can also change in response."¹²⁰ Trinidad and Tobago, because of the vulnerability of its asset infrastructure, lack of adequate maritime surveillance, and connection to the United States, provides terrorists with a low cost attack scenario (less costs in defeating deterrence systems) but high cost in consequences to the local, regional and their ultimate target the U.S. economy. An attack in Trinidad and Tobago will possibly kill U.S. citizens (expatriate workers), destroy returns on considerable U.S. investment and affect the entire economic system through increased gas prices. The calculations at the beginning of this chapter show the high cost that can be incurred from a low cost terrorist attack on an offshore platform. It illustrates the importance of security in these sparsely patrolled areas, and I have shown the comparison in costs of how much less it is in opportunity costs to provide the basic platforms to conduct surveillance in this sector. If an attack occurs in Trinidad's energy sector today, not only will it disrupt the supply of vital resources and security services to the region in the short term, but it would also offset long term plans to acquire the tools to ensure its security in the future. Finally the limited supply mechanisms that are presently available to feed U.S. demand should be noted. These are at the heart of the cause of high prices in the U.S. market. An attack that removes Trinidad, will further

¹²⁰ Former United States Central Intelligence Agency agent Robert Baer contends that Al Qaeda is watching the after effects of Hurricane Katrina and Rita. "Yet precisely because of the shortages brought on by that storm and the damage still being counted from Hurricane Rita, Saudi Arabia is more important than ever to world oil supplies. What's worse, according to several analysts, Al Qaeda knows it. There are watching Katrina, They're watching Rita. They're watching what it is doing to the United States." Christopher Dickey "Saudi Storms," Newsweek, October 3, 2005, p. 35. A similar situation exists with regards to LNG supplies from Trinidad and Tobago, which must be addressed.

worsen the supply equation. Additionally the higher costs associated with geographic distance in securing emergency supply in the industry dictate that the United States should take more interest in the security of its relatively cheap, and proximate main supplier. Failure to do this will result in large costs for all parties concerned.

THIS PAGE INTENTIONALLY LEFT BLANK

V. THE EFFECT OF UNITED STATES FOREIGN POLICY ON TRINIDAD AND TOBAGO'S STABILITY

Trinidad and Tobago is a small island state. In small countries, meeting the challenges of globalization and transnational terrorism, is a constant struggle, which requires constant updates of equipment and training to defeat these morphing threats.¹²¹ Challenged by limited resources and a plethora of development priorities, small nation states have to prioritize their responses to threats mainly along the lines of economic importance and feasibility. Economic and security assistance from larger developed nations is sometimes a necessary feature of these countries' security plans. While Trinidad and Tobago can be considered wealthy relative to the others islands in the region, it still requires assistance from larger developed countries in order to modernize and develop its security forces. Moreover, Trinidad and Tobago is also the major supplier of liquefied natural gas to the United States and is thus an attractive target for terror.¹²² A low cost attack on Trinidad and Tobago's energy sector could generate significant economic damage to both Trinidad and Tobago and the United States.

Despite closer economic and energy ties, recent U.S. foreign policy aimed at Trinidad and Tobago, that is the termination of security assistance, the curtailment of joint security operations and exercises, and a termination of U.S. funded military

¹²¹ Both Deere, and Gutteridge, and Thomas have illustrated the connection between U.S. Policy, aid, and security in the Caribbean during the Cold War and pre-September 11, 2001. They have all linked dependency, debt crisis, and economic difficulties to the development of conditions that facilitate corruption, crime, and in some cases revolution (Grenada 1983). These inadequate policies have caused the United States to intervene in the region several times within the last twenty years: in Grenada 1983, Panama 1989, and Haiti (1995, 2003). Carmen Deere, et al. "In the shadows of the Sun" 'Caribbean Development alternatives and U.S. Policy.' Colorado: Westview Press. 1990 and William Gutteridge & Desmond Thomas. "The Commonwealth Caribbean" 'Planning for Stability.' "Prospects for Economic development' & 'Lessons from the Caribbean.' Washington: The Centre for Security and Conflict Studies. 1989.

¹²² "Growing resentment over social and economic traumas induced by globalization is aimed at the United States, because oil is viewed as the primary motive for American involvement in these areas, and because the giant U.S. oil corporations are seen as the very embodiment of American power, anything to do with oil-pipelines, wells, refineries, loading platforms-is seen by insurgents as a legitimate and attractive target for attack; hence the raids on the pipelines in Iraq, on company offices in Saudi Arabia, and on oil tankers in Yemen." Michael Klare Blood & Oil: The Dangers and Consequences of America's Growing Petroleum Dependency, New York: Metropolitan/Henry Holt, 2005.

education and training programs for the Trinidad and Tobago Defense Force officers in the United States, reduces Trinidad and Tobago's ability to secure this mutually important sector.

In this chapter I will highlight the unintended consequences of U.S. foreign policy instruments on Trinidad and Tobago's stability. I will highlight the negative effects recent U.S. counter-drug and counter-terror policy has had on Trinidad and Tobago. I will also look at a specific U.S. foreign policy instrument the American Serviceman's Protection Act, and how it has acted as a barrier to Trinidad and Tobago in accessing counter-terrorism training and thus its ability to secure its vital energy sector. Lastly, I will look at recommendations for both Trinidad and Tobago and the United States for harmonizing bilateral diplomatic initiatives in such a way to mitigate this mutual threat.

A. THE EFFECTS OF U.S. COUNTER-DRUG POLICY ON TRINIDAD AND TOBAGO

The island's location places it between major narcotics producers in South America and the insatiable demand for drugs by consumers in the United States and North America. Close observation¹²³ reveals that the island state is presently caught up in a maelstrom of drug smuggling-induced crime. This surge in criminal activity, which includes illegal arms shipments, fully occupies the local security force's attention and resources. This surge in crime also contributes to the present instability by providing arms to criminal organizations. This type of environment would also make it easier for a larger attack by transnational groups while the local security forces are thoroughly engaged.

It can also be argued that U.S. counter-drug policy is contributing to an increase in drug trafficking activity around Trinidad and Tobago and this is contributing to deteriorating security in the nation generally. Presidential Defense Directive number fourteen in 1993 redirected United States drug control policy focus out of the Caribbean and on to Latin America, specifically Peru, Bolivia, and Colombia. The U.S. pull out of the region has caused two main effects an upsurge in trafficking in the region as traffickers move thorough Venezuela and Trinidad and up the Eastern Caribbean

¹²³ The deteriorating crime situation in Trinidad and Tobago is highlighted in Chapter III.

chain.¹²⁴ The fact that the coastal areas of Venezuela are impoverished, (mainly run down fishing villages) lightly patrolled and prone to illegal activity has made this the route of choice.¹²⁵ It was reported in the U.S. State Department's International Narcotics and Law Enforcement Bureau's 2002 International Drug control report for Venezuela:

Another outstanding example of law enforcement cooperation was an August 2002 investigation that made possible a combined operation in September 2002, "Golfo de Paria" In this operation, the Venezuelan National Guard, the Venezuelan Prosecutor's Drug Task Force (PDTF), and DEA targeted the Mario Sanchez (AKA Leon Cachito) narcotics trafficking organization, which was responsible for smuggling multi-ton loads of cocaine into the U.S. each month. With a day's notice, the operation went into action, by the end of the week concluding with the arrest of Sanchez and 15 co-defendants and the seizure of two tons of cocaine, 16 "go-fast" boats, 40 high-powered outboard motors, two fishing vessels, and various real estate.¹²⁶

The result is that, invariably, arms shipments and narcotic shipments occur simultaneously in the same illegal run. It has been this increased traffic by smugglers and increasing use of arms to commit crime that has focused the Government's priority on updating, and increasing the nations maritime security assets as its main response to this increase in crime. Increasingly, Venezuelan and Colombian nationals have been arrested in Trinidad and Tobago in connection with cocaine seizures.

¹²⁴ "Mr. Speaker, in discussions with our international partners, it was indicated that the southern and eastern Caribbean, including T&T, could expect to see increased levels of drug transshipment. This is due to the effects of plan Colombia and a joint UK-Jamaica programme referred to in, Jamaica as Operation King Fish of anti trafficking, which has resulted in increased displacements and redirection of drug trafficking. "Statement of the Honorable Minister of National Security Martin Joseph. Source: Shirley Bahadur, "Joseph committed to crime fight," Trinidad Guardian online, October 12, 2005. Available from <http://www.guardian.co.tt/archives/2005-10-14/news16.html>, Last accessed November 22, 2005.

¹²⁵ Between 26 and 28 July 2005, to be precise, a delegation from the Ministry of National Security visited my counterparts in Venezuela to deal with the transshipment of drugs from Venezuela through Trinidad, up North. Mr. Speaker, we were extremely concerned because three bordering states that were being used as transshipment facilities: Sucre State, Delta Amacuro (and) Guiria. Ibid.

¹²⁶ "The Drug Trade in the Caribbean 2003," A Threat Assessment. (section on Trinidad & Tobago) Office of Strategic Intelligence. Caribbean Strategic Intelligence Unit DEA 030, September 4, 2003. Golfo de Paria or Gulf of Paria, refers to the body of water which separates Trinidad and Tobago and Venezuela. At the closest point between the two countries this body of water measures just seven miles. The DEA operation highlighted above took place near Macuro an isolated and impoverished area, some nine miles from Trinidad and Tobago.

This increase of Venezuelan and Colombian “visitors” also contributes to increasing crime levels domestically because of the potential for violence, criminal expertise, dirty money, recruitment of accomplices and corruption that come along with their visits:

DEA officials in the Caribbean Division have expressed concern and worry over the bolder efforts of FARC guerillas to ship cocaine to the U.S. using several Caribbean countries as transshipment points. Trinidad in recent years has become much popular transshipment point because of the lack of security on the water, the agent said.¹²⁷

The Government has realized that illegal guns have been reported in the majority of crimes and has fixed the illegal gun and drug trade as one of its key strategies to curbing crime. To this strategy it has committed the Defense Force in large counter-smuggling operations. On Tuesday, August 23, 2005, the Trinidad and Tobago Coast Guard’s Special Naval Unit carried out a joint operation with Western Division policemen from the Trinidad and Tobago Police Service, and intercepted a Venezuelan vessel in local waters. The unit then subsequently raided a vacation home on Monos Island just one mile off Trinidad’s westernmost point. The SNU operation resulted in the largest seizure of cocaine in the island’s history: 1.75 tons of cocaine hydrochloride. Two local men, five Venezuelans, and one Antiguan were detained along with two automatic rifles, (a FN SLR and a Colt AR 180), four handguns, an Israeli Uzi sub machine gun, and two hundred and forty seven rounds of assorted ammunition. The vessel and Venezuelan nationals all came from Guiria, the closest large town on the Venezuelan side of the Gulf of Paria.¹²⁸

In summary, U.S. counter-drug policy, by concentrating on Colombia has caused traffickers to push their operations eastward into Venezuela. Venezuela does not share

¹²⁷ Mark Bassant “T&T Drug Dealers Linked to Colombian Guerillas,” Trinidad Express On Line. September 21, 2005. Available from http://www.trinidadexpress.com/index.pl/article_news?id=103094391, Last accessed October 4, 2005.

¹²⁸ This highly dangerous but successful operation came close on the heels of another interception made on the heels of another TTTCG coordinated interception carried out some three hundred miles off the East Coast of Trinidad. French Navy and Venezuelan Armed Forces assets assisted by aerial units of the TTTCG seized approximately three tons of cocaine aboard a Venezuelan registered fishing vessel Darryl Heeralal, “Biggest Drug Bust Ever,” Trinidad Express On Line, August 24, 2005. Available from <http://www.trinidadexpress.com/index.pl/article?id=97704391>, Last accessed October 4, 2005.

good relations or cooperation with U.S. counter-drug efforts and this allows the trade to fester. Trinidad and Tobago, its eastward neighbor, therefore, has also experienced an upsurge in illegal activity that has tended to destabilize the nation and the steady flow of arms has increased the threat of terrorism generally.

B. THE EFFECTS OF U.S. COUNTER-TERROR POLICY ON TRINIDAD AND TOBAGO

The U.S./TT signing of the Ship Rider Act in 1996 had made it possible for United States Coast Guard vessels to patrol the local waters of Trinidad and Tobago with Trinidad and Tobago personnel on board. This was coupled to several annual deployments of U.S. Coast Guard cutters, U.S. Navy Special Boat Units and Seal Teams to do pre-deployment training and counter-terror and counter-drug training with local forces. September the 11th has negated these positive notes. Joint operations have been routinely canceled including the annual Operation Carib Venture and other spontaneous, intelligence driven, joint maritime counter-drug exercises. USCG vessel port calls in Trinidad and Tobago have been reduced from an average of six (operational maritime security deployments) between 1996 and 2001 to bi-annual visits of the Caribbean Support Tender,¹²⁹ which hosts a multinational crew of which Trinidad and Tobago is the largest contributor

Patrols and surveillance by U.S. Law enforcement and military assets have been significantly reduced in the Caribbean post September 11, 2001. Redirection of U.S. assets to a homeland and border security posture has contributed to increased illegal traffic in the Southern Caribbean. In a recent United Nations sponsored report of drug trafficking in the Caribbean,¹³⁰ it is highlighted that after September 11, 2001, some 400 and other(?) FBI agents assigned to counter-drug operations in the region were immediately reassigned. Seventy five percent of the U.S. assets (intelligence officers, cutters, helicopters and aircraft) were redirected to the United States from their patrol duties in the Caribbean to protect ports, coastal power stations, nuclear facilities, oil

¹²⁹ A 180 foot, 12 knot buoy tender, whose primary mission is logistic support and training to the small Coast Guards in the Eastern Caribbean.

¹³⁰ Caribbean Drug Trends 2001-2002 United Nations Office on Drugs and Crime. Caribbean Regional Office, Bridgetown Barbados, WI, February 2003.

tankers and cruise ships entering U.S. ports. In summary, the redirection of assets according to the report has resulted in the overwhelming use of maritime routes by smugglers, weapons traffickers, and illegal immigrants in high-speed craft. The result of this increased traffic for Trinidad has been an increase in illegal arms trafficking, domestic crime, and in a potential increase in the terrorist threat to its energy sector. Lack of surveillance assets by local forces and a reduced U.S. presence has made it very easy for criminals, terrorists, and their international sponsors to organize, equip, and commit groups to terrorist or criminal acts within the maritime boundaries of Trinidad and Tobago.

In “Strengthening America’s Southern Flank Requires a Better Effort,” James Carafano¹³¹ calls for a revitalization of the U.S. military’s Southern Command. He calls for more joint exercises and an overhaul of the security assistance legislation. He stresses that this is key in providing advanced training to the Caribbean and Latin American countries so that they can become better partners in the war on terror. In “Making the Sea Safer”¹³² he calls on the U.S. Maritime security apparatus to become better at winning “away games” through developing the “playing field,” and through security regimes and partnerships in developing countries, in order to foster economic development and security. He also sums up the issue very aptly:

U.S. policy makers must sort out and clarify America’s approach to hemispheric threats while persuading multinational forums on regional security to develop a new basis for achieving that goal. Failure to move forward on such an agenda will give terrorists and criminals the upper hand.¹³³

The U.S. needs to increase its presence in the Caribbean to secure its vital energy security interests. Trinidad and Tobago’s dominance in LNG export makes it no different than other suppliers of energy to the United States. It deserves better security and security

¹³¹ He also asserts that increased attacks at sea have increased insurance premiums by approximately 16 billion dollars.

¹³² James Carafano, “Making the Sea Safer, A National Agenda for Maritime Security and Counter Terrorism.” Washington: The Heritage Foundation, 2005.

¹³³ James Carafano, “Strengthening America’s Southern Flank Requires a Better Effort.” Washington: The Heritage Foundation, 2004.

cooperation than what exists at present. What is required is the same level of cooperation that the United States practices with other vital sources of energy. In both the Aegean Sea and Mediterranean, the U.S. (along with the European Union) has built up standing forces and signed agreements to ensure the safety of oil and gas tankers and infrastructure.¹³⁴ U.S. servicemen are engaged in petroleum infrastructure protection in Colombia, Saudi Arabia, the Republic of Georgia, and in maritime surveillance operations to protect offshore installations in the Persian Gulf,¹³⁵ Arabian Sea, South China Sea, Nigeria,¹³⁶ and Kazakhstan.

When requesting funds in 2004 to establish a ‘rapid–reaction brigade’ in Kazakhstan, for example, the State department told Congress such a force is needed to ‘enhance’ Kazakhstan’s capability to respond to major terrorist threats to oil platforms in the Caspian Sea.¹³⁷

Finally Rear Admiral Chris Ames, USN highlighted that the U.S. Navy maintains a permanent Expeditionary Strike Group (some 3000 sailors and marines) and patrol boats from the U.S. Coast Guard off Iraq’s Southern Coast to protect threatened offshore

¹³⁴ An appreciable increase in the flow of oil and gas through the Aegean and Eastern Mediterranean is expected to require the constant presence of U.S. and allied forces at some level. Daniel Whiteneck, “Energy Terrorism and Organized Crime,” Western Policy Center, 2005.

¹³⁵ The first combat operation of the war in Iraq was conducted by the U.S. Navy Seals seized two Iraqi platforms and, since then, several thousand U.S. and British troops have been tied up securing Iraqi oil infrastructure from insurgent attacks. U.S. military training assistance and equipment grants to Nigeria are closely related to the fact that in the future up to 25% of American imports could come from Nigeria and a similar situation for Kazakhstan. Michael Klare, *Blood & Oil: The Dangers and Consequences of America’s Growing Petroleum Dependency*. New York: Metropolitan/Henry Holt, 2005

¹³⁶ Recently Al Qaeda threats to the oil and gas operations in Nigeria have prompted renewed U.S. military interest in the region. Al Qaeda had reportedly made a direct threat against the presence of U.S. oil companies in the country. The United States is conducting a 5 year, \$100 million program wherein African countries that have substantial oil reserves receive counter-terrorism and oil protection training. This includes Exercise Flintlock a multi national operation involving African militaries in joint counter-terror training. Eric Watkins “Bin Laden and Oil Markets,” *Oil and Gas Journal*. June 27, 2005, Vol. 103.24, p. 29.

¹³⁷ Assisting regional partners to maintain the maritime sovereignty of their territorial seas and internal waters is a longstanding objective of the United States and contributes directly to the partners’ economic development as well as their ability to combat unlawful or hostile exploitation by a variety of threats. The National Maritime Strategy of the United States Washington: The White House, March 8, 2005, p. 13.

petroleum platforms.¹³⁸ This is the type of cooperation needed in the Southern Caribbean to protect Trinidad and Tobago's and the United States' mutual energy interests.

C. THE INTERNATIONAL CRIMINAL COURT CONTROVERSY

In August 2003, U.S. State Department officials announced that all aid and training assistance would be cut to Trinidad and Tobago. This was prompted because of Trinidad and Tobago's refusal to sign a bilateral waiver exempting United States military personnel from prosecution by the International Criminal Court. Trinidad and Tobago's former President ANR Robinson is credited as one of the architects and driving forces behind the implementation of this international court, so it would be difficult for Trinidad to capitulate to U.S. wishes and change its position on this issue.¹ Interestingly the chief prosecutor of the International Criminal Court, Luis Moreno Ocampo, is Argentinean. Argentina has not signed a Bilateral Immunity Agreement with the United States, yet it is not subject to the ban on security assistance from the United States. (see Table 12)

While it can be argued the nominal figure in Table 12 allocated to Trinidad and Tobago is not very large, and that Trinidad and Tobago is small enough and rich enough to fund its own training at other institutions, there is still the question of access. Visas can be approved quickly and processed through the U.S. Military Liaison Office of the Embassy. The U.S. International Military Education and Training information system is also a vital system in terms of information about upcoming courses, update courses, course availability, and scheduling. Accessing institutions on a one-on-one basis is time consuming, inefficient, and costly. U.S. offered courses also come with built in lodging at U.S. facilities, medical care, and paid airfare.

¹³⁸ Rear Admiral Christopher C. Ames, Commander, Amphibious Group Three "Fresh Perspectives from the Arabian Gulf: Expeditionary Strike Group Five," –Secretary of the Navy Guest Lecture: U.S. Naval Postgraduate School, August 8, 2005.

Table 12. The Disposition in Relation to Article 98 of the Latin American and Caribbean Countries (From: United States, Bureau of Resource Management)

Latin America and the Caribbean: ICC Member States and BIAs				
Country	Signed/Not Signed a BIA	Potential Aid Lost	Publicly Refused to Sign	Exempted as a Major Ally
Antigua & Barbuda	Signed	Shared* \$2.7 million (2004)		
Argentina	Not Signed	\$1 million (2004)	Yes	Exempt
Barbados	Not Signed	\$4.5 million (2004)		
Belize	Signed	\$400,000 (2004)		
Bolivia	Not Signed but obtained a partial waiver	\$4.5 million (2004)		
Brazil	Not Signed	\$500,000 (2004)	Yes	
Colombia	Signed	\$110 million + (2004)		
Costa Rica	Not Signed	\$400,000 (2004)	Yes	
Dominica	Not Signed	Shared* \$2.7 million (2004)		
Ecuador	Not Signed	\$15.65 million (2004)		
Honduras	Signed	\$650,000 (2004)		
Panama	Signed	\$2.7 million (2004)		
Paraguay	Not Signed	\$300,000 (2004)	Yes	
Peru	Not Signed	\$2.7 million (2004)		
St. Vincent and the Grenadines	Not Signed	Shared* \$2.7 million (2004)		
Trinidad & Tobago	Not Signed	\$450,000 (2004)	Yes	
Uruguay	Not Signed	\$1.45 million (2004)		
Venezuela	Not Signed	\$700,000 (2004)	Yes	

Source: United States, Bureau of Resource Management, *Summary and Highlights International Affairs Function 150: Fiscal Year 2004 Budget Highlights* and Washington Working Group on the International Criminal Court, *Bilateral Immunity Agreements: Breakdown of Countries* (<http://www.wfa.org/issues/wicc/article98/biatable.doc>)

*US aid to the countries of the Eastern Caribbean (Antigua and Barbuda, Barbados, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines) security assistance was reported jointly.

It must also be noted from Table 13 that other vital areas of aid like the HIV/AIDS assistance has also been cut and funds have to be redirected to these areas too, reducing the amount of available funds generally, and ultimately less for Defense resources procurement.

Table 13. U.S. Foreign Assistance to the Caribbean FY 2005 Estimates and FY 2006 Requests (From: Figures Drawn from Congressional Budget Justification, Foreign Operations, Summary Tables Fiscal Year 2006. U.S. Department of State)

Country	DA	CSH	GHAI	ESF	PL480	IMET	INCLE	FMF	Other	Total
Bahamas 05 FY 2006 Req.						.24 .24	.99 .50	.10 .10		1.33 .84
Belize 05 FY 2006 Req.						20 .20		.20 .20	1.72 1.69	2.12 2.09
Cuba 05 FY 2006 Req.				8.93 15.00		.				8.93 15.00
D.R. 05 FY 2006 Req.	7.06 9.08	13.00 10.55		2.98 3.00		1.10 1.10		.99 1.00	3.36 3.35	29.09 28.08
Guyana 05 FY 2006 Req.	3.46 3.94		13.15 21.36			.30 .30		.10 .10	1.54 1.52	18.55 27.22
Haiti 05 FY 2006 Req.	25.00 19.32	20.00 19.32	39.37 47.00	39.68 50.00	37.70 32.53	.15 .22	15.00	.30 1.00	1.39 31.41	163.59 196.48
Jamaica 05 FY 2006 Req.	12.88 10.91	4.56 3.29				.70 .70	1.48 1.00	.60 .60	2.93 2.87	23.15 19.37
Suriname 05 FY 2006 Req.						.15 .15		.10 .10	1.26 1.25	1.51 1.50
T & T 05 FY 2006 Req.						.05				.05
Third Border 05 FY 2006 Req.				8.93 6.00						8.93 6.00
Op. Enduring Friendship FY 2006 Req.								5.00		5.00
Carib Region FY 2006 Req.	2.81 4.92	4.73 4.73							100.00	107.54 9.65
East. Carib. 05 FY 2006 Req.						.80 .78		.99 1.25	3.06 2.95	4.85 4.98
Total 2005	51.81	42.29	52.52	60.52	37.70	3.64	2.47	3.38	115.26	369.59
Total 2006	28.85	37.89	68.36	74.00	32.53	3.74	16.50	9.35	45.04	316.26

Key

DA-Development Assistance

CSH –Child Survival and Health Program Fund

GHAI?

ESF- Economic Support Fund

PL 480-Food Assistance Program

IMET-International Military Education and Training

INCLE- International Narcotics Control and Law Enforcement

FMF -Foreign Military Financing

In essence, military education and training is much cheaper and efficient using the U.S. system. Many of the operating systems used by the security agencies of Trinidad and Tobago are of U.S. origin and this makes access to affordable U.S. training essential. Acquiring substitute systems and training in European is also problematic. This is due to the expense of accessing quality maritime military training in traditional areas like the United Kingdom. The proximity; convenience; lower cost; and the opportunity to learn the common procedures, technology, protocols, and systems of the very units they will interact with in securing the region make U.S. training the logical choice.

In summary, the sanctions imposed by the U.S. with reference to the ICC has made it harder for the local security forces to access quality military and security training. The net result is that this has ultimately reduced its ability to secure an area of vital interest to U.S. energy security strategy and economy.

Prior to the Article 98 controversy Trinidad and Tobago enjoyed extremely good relations with the United States and this relationship strengthened regional security. In March 2002, the United States Coast Guard's Greater Antilles section officially requested that the Trinidad and Tobago Coast Guard conduct a counter-drug patrol in an area of their responsibility (off Puerto Rico) for the month of April 2002, while its resources were deployed on surged Homeland Defense missions. TTS Nelson, the flagship of the Trinidad and Tobago Coast Guard with a local Special Forces detachment carried out this mission. The TTCG had also recently begun joining U.S. Coast Guard Law Enforcement Detachments, in keeping with the Ship Rider Act, to prosecute counter-narcotic and terror missions outside of the islands' territorial boundaries. These were prior to the ICC controversy. In the new diplomatic environment, little to no joint operations take place.

Table 14. U.S. Aid to Trinidad and Tobago Prior to Article 98 and After (From: Center for International Policy Online¹³⁹)

	2001	2002	2003	2004	2005
Anti Terrorism assistance	0	0	0	0	0
International Military education and training	0.12	0.13	0.15	0	0.5
Joint Cooperative Engagement Training, exchanges and unspecified *(No. of iterations)	93*	56*	13*	0	0
Foreign military sales (Govt. to Govt. sales of defense articles training and services)	0.17	0.13	0.001	0	0
Military and Police Aid	0.95	0.84	0.84	0.30	0.35

All figures in millions of U.S. dollars

Realist foreign policy has not produced positive results for the United States in its relations with Trinidad and Tobago. Trinidad has not capitulated on the ICC issue based on pressure from the United States. Conversely, neither has interdependence produced cooperation as liberal theory would suggest. What is needed is a more constructive approach focused on the symbiotic interests of the two nations and in keeping with both countries' stated foreign policy strategies and energy security interests.

Spencer Abraham, U.S. Energy Secretary:

American energy security policy must compliment and support America's economic and foreign policy goals. This approach – looking to cooperation with the major producers and consumers – to handle challenges of the global energy market underscores the role of foreign policy in promoting energy security.¹⁴⁰

¹³⁹ Center for International Policy Online Available from <http://ciponline.org/facts/tt.htm>, Last accessed October 4, 2005.

¹⁴⁰ Spencer Abraham, "Challenges to Economic Security." Economic Perspectives. Available from <http://www.usinfo.state.gov/journals/journals.htm>, Last Accessed August 30, 2005.

Based on Trinidad and Tobago's role in promoting security and stability in both the Caribbean region and the Third Border area of the United States, and its key role in the Energy Security strategy of the United States, it should be given a waiver on national security grounds for a country that is a proactive and cooperative energy and security partner.¹⁴¹

If the United States does change its present security assistance policy, it has also to radically change the type of assistance it grants, in order to meet the current growing threat. Prior to the Article 98 controversy, the U.S. Government donated four 82-foot patrol boats between 1999-2002 and two C 26 aircraft, as well as other minor equipment support in the form of computers and narcotic test kits to Trinidad and Tobago. These vessels were considered obsolete both in the United States and by its grateful recipients, (all in excess of 35 years old). They were slow and were not suited to rough local waters as a stable law enforcement platform. The problem has always been the unsuitability and inadequacy of gifts to be meaningful tools in security operations. Trinidad and Tobago has long had access to the latest technology as used in the petrochemical sector.¹⁴² This access to technology since the late 1960's has led to a technologically savvy society and this use of the latest technology pervades the government apparatus. The U.S. State Department has traditionally lumped donations of equipment to the entire Caribbean region together.¹⁴³ Low technology gifts, which may be effective in other islands, are a source of frustration in Trinidad and Tobago (the 82 footer patrol vessels donated between 1999-2001 are a case in point). Large sums of money are spent in upgrading these vessels locally, and further large sums in trying to keep them operational.¹⁴⁴ This only exacerbates the law enforcement dilemma of keeping operational units on station to

¹⁴¹ Section B NATIONAL INTEREST WAIVER – The President may, without prior notice to Congress, waive the prohibition of subsection (a) with respect to a particular country if he determines and reports to the appropriate congressional committees that it is important to the national interest of the United States to waive such prohibition.” Extract of American Serviceman's Protection Act ASPA. Available from <http://hrw.org/campaigns/icc/docs/bilateralagreements.pdf>, Last accessed October 14, 2005.

¹⁴² This includes the latest navigational, dynamic positioning, and production software and technology. {in the detection and recording of oil and gas wells} Source: NEAP involvement.

¹⁴³ See last four columns of Table 15.

¹⁴⁴ A quarterly status report is required by the U.S. Embassy in Port of Spain, on all donated equipment and further donations can be affected by these reports. This encourages the prolonged use of inadequate resources.

deny access by smugglers, and challenges the budgets available for the acquisition of new equipment. United States donated equipment has either been uneconomical to run, low technology, or outdated equipment in the United States military system.

It is significant that TTS Nelson (which was bought from the United Kingdom by the GOTT and upgraded locally) is the type of capability that is requested by the U.S. to patrol its waters. This illustrates the utility and value of donated gifts. Trinidad and Tobago requires modern equipment to ensure the security of its energy sector, see Table 16.

Table 15. Equipment and Training Required to Secure the Maritime Domain of Trinidad and Tobago

Generic	Equipment type		Type of training	
Strategic	Intelligence data base software	UAV technology	Fellowships attachments	Strategic Security coordination policy formulation
Operational	Ultra fast interceptors	Container scanning equipment	Attachments at JIATF*'s JTF6*	Scheduled Intelligence Coordination meetings
Tactical	Night vision equipment	High definition maritime radar to upgrade existing vessels	Critical incident commanders courses	Federal Law Enforcement Centre funded course access
Counter-terror				
Strategic	SIGINT* technology	UAV* technology	Counter-Terrorism Fellowships NPS, Inter American Defense College	More funded places at War Colleges and TCA activities FBI Quantico Academy courses
Operational	Encrypted communications technology	Net-centric technology	Counter-terror commanders courses	Access to DOD FIBUA* and MOUT* training facilities
Tactical	Ion scan, night vision equipment	Ballistic protection	Increased Joint Cooperative Engagement Training	Re deployment of assets in the region for joint exercises
Energy Specific				

Generic	Equipment type		Type of training	
Strategic	Remote submersible vehicle for pipeline monitoring.	Threat alert system and alert reporting network net-centric software	Maritime Domain awareness training.	Contingency planning. Observer's missions to Iraq to gain experience in total industry defense against terrorism.
Operational	Incident command software.	Environmental impact software.	Major incident drills, offshore environment.	Platform storming drills.
Tactical	Platform defense and protection system	Specialist equipment; gas meters, low velocity ammunition,	Platform Safety	Platform familiarization

JIATF- Joint Inter Agency Task Forces

JTF6- Joint Task Force 6

SIGINT-Signals intelligence

UAV- Unmanned aerial vehicle (surveillance)

FIBUA- Fighting In Built Up Areas (Shugart and Gordon facility)

MOUT- Military operations in urban terrain.

In conclusion, U.S. foreign policy towards Trinidad and Tobago appears to be punitive toward an ally that supports the U.S. economic and security interests. While Trinidad and Tobago cannot dictate the counter-drug policy of the United States, it can clearly point out how it affects the stability of Trinidad and Tobago. The Government of Trinidad and Tobago can also request assistance to combat the unintended negative consequences of U.S. policy, such as the rising crime levels in Trinidad and Tobago. There is some scope also for de-confliction of the various U.S. foreign policy instruments, so that, combined, they do not inadvertently destabilize Trinidad and Tobago and simultaneously place United States energy interests at risk.

What is clearly needed is a waiver for Trinidad and Tobago with regard to the American Serviceman's Protection Act (ICC issue). After this is achieved, radical adjustments are also required to the traditional type of U.S. security assistance and

cooperation provided to Trinidad and Tobago. The use of high technology and modern equipment in sufficient numbers, as highlighted in Table 15, is what is needed to enhance the security of the local energy sector and, in effect, critical, mutual, energy and security interests.

VI. RECOMMENDATIONS

The Government of Trinidad and Tobago should immediately accelerate diversification of its economy away from heavy reliance on the energy sector. In order to safeguard itself from macroeconomic shocks that could result from disruptions in this sector, it must: a) develop the other promising features of its economy, such as tourism and non-petroleum exports, and b) expand its role as the financial center in the Caribbean to generate increased revenue in capital markets.

In the meantime, the Government of Trinidad and Tobago needs to bolster its maritime forces to ensure the security of the maritime-based oil and gas industry. To do this it must address a long-standing issue by publishing a National Military Strategy. In order to ensure the most efficient, credible and sustainable security of this sector, this document should contain strategies to equip the TTCCG with new equipment to provide credible law enforcement capability. New equipment would simultaneously combat the maritime borne drug trade, which contributes to high crime levels, possible acts of terrorism and low investment confidence. The document should also address strategies to procure training and state of the art equipment for the Trinidad and Tobago Defense Force/ Coast Guard Special Naval Unit so that it can conduct credible maritime counter-terrorism operations within the energy sector. Since the wider Caribbean region is also dependent on Trinidad and Tobago for the supply of petroleum resources, financial services, communications and military support, the document should also address the Trinidad and Tobago Defense Force's role in the wider region.

In conjunction with the Ministry of Energy, the Ministry of National Security should create a National Energy security center to analyze worldwide terrorist incidents involving energy facilities. This center should provide research, modeling, and simulation capabilities in order to derive effective national responses to the threats posed to the local energy industry. Such a center could sponsor training for security forces on platform systems and critical nodes within the energy sector. It could also promote greater interface with the energy industry and the Defense Force, in terms of funding training,

information and technology exchange. The center should have a maritime energy emergency incident room to manage these incidents, as well.

There is also a requirement for the Trinidad and Tobago Ministry of Energy to promote strategies that inculcate a maritime domain awareness culture in the sector (with legislation) that works in conjunction with the safety culture. The practice of arming platform standby vessels to act as deterrents to maritime attack should also be strongly considered. Such a practice does not violate the no-firearms policy enforced on platforms.

The Ministry should encourage the adoption of a Design Basis Threat system for construction of new offshore platforms in order to harden the national energy infrastructure against terrorist attack. It is also strongly recommended that the Ministry create legislation to enforce a national certificate and training program for specialized training for private security companies providing security personnel to critical energy facilities. This must be a mandatory requirement before personnel can be employed in security at energy facilities in order to ensure competent security procedures are followed at all critical installations.

In order for the latest technology and techniques to be employed by the Trinidad and Tobago Defense Force, U.S. funding and security assistance needs to be resumed to Trinidad and Tobago to help secure the mutual energy interests of the United States and Trinidad and Tobago. U.S. sponsored anti-terror training on the latest technology and techniques, with a specific focus on the energy sector, is also required.

Waivers are strongly recommended on U.S. broad-based, punitive, ICC related, foreign policy instruments that complicate the protection of U.S. security interests in the region. Once this is achieved both countries need to share real time intelligence on energy security matters. This intelligence cooperation needs to be supported by an increased presence of U.S. law enforcement assets in the sparsely patrolled outer limits of the EEZ to bolster local security efforts, in keeping with the Ship Rider Act. Local security efforts can also be enhanced by the transfer to the Southern Caribbean region of the same modern equipment and technology that is used in the United States to meet the evolving terrorist threats.

Finally, US assistance is also required in drafting legislative approaches (including recent precedents on Islamic charities funding issues) to amend local legislation (in Trinidad and Tobago) in the form of United States RICO laws; so that the Jamaat al Muslimeen as an entire organization can be targeted. At present, only individual cases can be made against members of this group, with very limited latitude to conspiracy proceedings.

THIS PAGE INTENTIONALLY LEFT BLANK

VII. CONCLUSION

The government of Trinidad and Tobago must accept the urgent need to secure the country's economic engine: the energy sector. The threats to the local energy industry are varied. They include depreciation of the investment climate by increased crime and violence, and a maritime based-terrorist attack. An attack on Trinidad and Tobago's energy infrastructure will have a three-fold effect. It will significantly retard economic growth in the island, have debilitating effects on the region, and disrupt the U.S. energy supply, and economy. The events in Trinidad in 1990, and recent bombings in Port of Spain, dispel the myth that the region is safe from terrorism and will remain safe with reduced presence and assistance from the United States. The Government of Trinidad and Tobago must do its part in preparing and outlying its national military strategy and regional strategic objectives in a published document. This document must also clearly outline the steps needed to provide the military with a sustainable and credible energy security policy and analogous anti-terrorism strategy. The U.S. can assist in this regard by providing assistance for the democratic, legal, and thorough dismantling of the Jamaat Al Muslimeen whose continued existence does nothing to contribute to a safe, secure, and stable investment environment in Trinidad and Tobago.

It is clear that the economies of the countries in the region are fragile, and an attack could have devastating effects on Trinidad and Tobago, the region, and the United States' "Third Border." The Haitian refugee crisis of yesteryear and the constant employment of the United States Coast Guard in illegal immigration barrier patrols may foreshadow the possible effects of deteriorating economic conditions in its backyard.

It is also clear that the United States, the world's largest consumer of energy and energy resources, has little choice but to become proactive in the security of energy resources in the regions that supply it. Interdependence and the transnational nature of terrorism make it vulnerable to attacks on energy resources both inside and outside the United States. The convenience and security of its energy relationship with Trinidad and Tobago cannot be taken for granted. Vigilance must be maintained, and the United States

must take on board (accept may be a better word) the growing incidence of maritime-based attack and attacks within the industrial sector. It must empower its allies, not place barriers hindering them from upgrading their ability to prevent and repel terrorist attacks. No maritime security force in the region can match the United States' ability to project military and effective law enforcement assets into the region, or sustain them logistically for prolonged periods. While this is an ideal solution to protect Trinidad's large maritime sector, and the best way to secure the region from terror attack, it may not be politically or economically practical to either Government. It is possible that such an approach would not be understood or supported by the United States taxpayers, especially in the light of other pressing domestic economic issues, and the current considerable economic and security burden being carried in Iraq and Afghanistan. A cost effective and long-term alternative, in keeping with U.S. foreign policy and its National Defense and Maritime strategy, must then be selected. Security assistance, with equipment and training, is required to help Trinidad and Tobago's maritime forces to undertake this mission more effectively, with the most modern equipment, training, and procedures. This however can only be achieved effectively if punitive diplomatic barriers are removed and security assistance funding is restored. The removal of the impediments must be accompanied by sporadic and spontaneous U.S. presence to consolidate security in remote adjacent maritime areas not routinely patrolled by regional forces through which an attack can be initiated. This can be achieved by information sharing, equipment grants, renewed bilateral security partnerships, and training regimens, to conduct a better surveillance mission at energy sources. These strategies also serve a two-fold purpose in securing against terrorism and drug trafficking, and in protecting U.S. consumers and, ultimately, its economy from escalating oil and gas prices.

BIBLIOGRAPHY

- Adams, Neal. *Terrorism & Oil*. Tulsa: Pennwell, 2003.
- Alexander, Dean, and Yonah Alexander. *Terrorism and Business*. New York: Transnational Publishers, 2002.
- Australia. Department of Foreign Affairs and Trade. Economic Analytical Unit. “*Costs of Maritime Terrorism and Piracy*.” Report, 2003.
- Barnett, Thomas P.M. *The Pentagon’s New Map: War and Peace in and Peace in the Twenty First-Century*. New York: Putnam, 2004.
- Berry, LaVerle et al., “*A Global Overview of Narcotics Terrorist and other Extremist Groups*.” Washington: Library of Congress, 2002.
- Broder, James F. *Risk Analysis and the Security Survey*. Boston: Butterworth/Heinemann, 2000.
- Brookings Institution. “*Protecting the American Homeland*.” Washington: The Brookings Institution, 2004.
- Brown, Stephen “U.S. Natural Gas Markets in Turmoil,” Testimony Prepared for a Hearing on the Scientific Inventory of Oil and Gas Resources on Federal Lands: The Sub Committee on resources U.S. House of Representatives, Thursday, June, 19, 2003.
- Bryan, Anthony and Stephen Flynn. “*Free Trade, Smart Borders, and Homeland Security: U.S.-Caribbean Cooperation in a New Era of Vulnerability*.” Miami: The Dante B. Fascell North – South Centre, 2002.
- Burke, Jason. *Al Qaeda: The True Story of Radical Islam*. London: I. B. Tauris, 2004.
- Carafano, James. “*Making the Sea Safer, A National Agenda for Maritime Security and Counter-Terrorism*.” Washington: The Heritage Foundation, 2005.
- Carafano, James. “*Strengthening America’s Southern Flank Requires a Better Effort*.” Washington: The Heritage Foundation, 2004.
- Council on Hemispheric Affairs. “*Washington’s Short Sighted Policy toward Latin America and the Caribbean*,” COHA Memorandum to the Press. Washington: August 5, 2005.
- Costas, Richard. “*Banking on Change*,” Caribbean Beat Magazine, March 2005, 72.

- Deere, Carmen, D, et al., *In the Shadows of the Sun, Caribbean Development Alternatives and U.S. Policy*. Colorado: Westview Press, 1990.
- Delmar, W. J. “*The Effect of Hurricane Ivan on Oil and Gas Production in the Gulf of Mexico*.” Louisiana: Department of Natural Resources, November 2004.
- Energy Information Agency, “The Global Liquefied Natural Gas Market: Status & Outlook,” December 2003, p. 44. Available from Feege Edward and Scott C. Truver “Homeland Security: Implications for the Coast Guard” Globalisation and Maritime Power,” Anteon Corporation: 2002.
- Gold, David. “*Economics of Terrorism*.” Available from <http://www.ciaonet.org/casestudy/god01/>, Last accessed September 28, 2005.
- Gray, Colin S. *Explorations in Strategy*. Westport: Greenwood Press, 1996.
- Griffith, Ivelaw L. *Caribbean Security on the Eve of the 21st Century*. Pennsylvania: Pennsylvania State Union Press, 1996.
- Griffith, Ivelaw, L. *Drugs and Security in the Caribbean*. Pennsylvania: Pennsylvania State Union Press, 1997.
- Griffith, Ivelaw (Summer, 2003). Security, Sovereignty, and Public Order in the Caribbean. *Security and Defense Studies Review*. Available at: <http://www.miami.edu/nsc/publications/Papers&Reports/CaribSecurity.html>, Last accessed October 1, 2005.
- Gutteridge, William, and Desmond Thomas. *The Commonwealth Caribbean: Planning for Stability: Prospects for Economic Development & Lessons from the Caribbean*. Washington: The Centre for Security and Conflict Studies, 1989.
- Harrald, John “A Framework for Sustainable Port Security.” Washington: Journal of Homeland Security and Emergency Management. Volume 1, Issue 2, 2004.
- Hill, General James, T. United States Army. Commander United States Southern Command, “Written Statement before 108th Congress House Committee on Government Reform,” Washington: June 17, 2004. Last accessed 28 September 2005.
- Humphries Marc, “Outer Continental Shelf Oil and Gas:” ‘Energy Security and other Major Issues’ Congressional Research Service, Library of Congress. Washington, March 2003, RL 31521.
- Klare, Michael T. *Blood & Oil: The Dangers and Consequences of America’s Growing Petroleum Dependency*. New York: Metropolitan/Henry Holt, 2005.

- Kleiman, Mark, A. R., "Illicit Drugs and the Terrorist Threat: Casual Links and Implications for Domestic Drug Control Policy." Washington: Library of Congress. 2004.
- Kneese, Allen V. Luft, & James L. Sweeney. *Handbook of Natural Resource and Energy Economics*, Volume III. New York: Elsevier, 1993.
- Kocknar, Ali. "M. Maritime Terrorism: A New Challenge for N.A.T.O.," Institute for the Analysis of Global Security Online. January 24, 2005. Available from <http://www.iags.org/n0124051.htm>, Last accessed October 1, 2005.
- Lawrence J. Frederick. "Myths and Realities Shaping LNG," News and Issues: America's Independent. April 2003.
- Lee, Henry. "Dawning of a New Era: The LNG Story," Environment and Natural Resources Program (ENRP) Discussion Paper 2005-07, Belfer Centre for Science and International Affairs (BCSIA). John F. Kennedy School of Government. Cambridge, MA: April 2005.
- Luft, Gal. "Terrorism Goes to Sea," Taken from Foreign Affairs. November/December 2004. Available from Institute for the Analysis of Global Security On line. <http://www.iags.org/fa2004.html>, Last accessed October 1, 2005
- Luft, Gal "Terror's Big Prize," Institute for the Analysis of Global Security Online. April 30, 2004. Available from [http:// www.iags.org/n050904a.htm](http://www.iags.org/n050904a.htm), Last accessed October 1, 2005.
- Neil, Chris, "2003 Shows Spot Cargoes, Tankers to Dictate U.S. LNG Supplies, not Terminal Capacities," Oil & Gas Journal Vol. 102 Iss. 14, p. 70.
- Orr, Robert C. Winning the Peace. Washington: Centre for Strategic and International Studies, 2004.
- Rabin, Norman, J. "Observations on the National Strategies Related to Terrorism," Testimony before the Sub-committee on National Security, Emerging Threats, and International Relations, Committee on Government Reform, House of Representatives. Washington: Wednesday, September 22, 2004. United States Government Accountability Office.
- Ribando, Clare. "Organization of American States: A Primer," Congressional Research Service, Library of Congress. Washington, May 2005, RS 22095.
- Ritz, Michael W. et al. (eds.) "The Homeland Security Papers: Stemming the Tide of Terror." USAF Counter-Proliferation Centre. 2004.
- Rodrigue, Jean-Paul "Straits and Choke Points : A Maritime Geo-Strategy of Petroleum Distribution," Hofstra University: New York, 2004.

- South Chamber of Industry and Commerce of Trinidad and Tobago, "Economic Growth Needs Industrial Peace," April 2005. Available from <http://www.southchamber.org/stcic/ttenergy/>, Last accessed November 2005.
- Stone, Carl. "Power in the Caribbean Basin." Philadelphia: Institute for the study of Human issues. 1986.
- Steinitz, Mark S. "The Terrorism and Drug Connection in Latin America's Andean Region," Washington: United States Department of State. 2001.
- Sullivan Mark, "Caribbean Region: Issues in U.S. Relations." Congressional Research Service, Library of Congress. Washington, January 2005 RL 32160.
- Task Force on Affordable Natural Gas "Natural Gas Supply Shortages threaten economic growth," Available from <http://energycommerce.house.gov/NaturalGasTaskForce>, Last accessed June 7, 2005
- U.S. Census Bureau, Foreign Trade Division, Data Dissemination Branch, Report on Trade with Trinidad and Tobago, 20233. Washington, D.C.: 2004.
- U.S. Congress. Senate. Committee on Energy and Natural Resources. Global Energy Trends and Their Potential Impact on U.S. Energy Needs, Security and Policy. Hearing before Committee on Energy and Natural Resources, 109th Cong., 1st sess., February 3, 2005.
- U.S. Congress. Senate. Committee on Energy and Natural Resources. Natural Gas Symposium. Washington, D.C.: GPO, 2005.
- U.S. Congress. Senate. Committee on Energy and Natural Resources. Natural gas supply and prices. Hearing before Committee on Energy and Natural Resources, 108th Cong., 1st sess., February 25, 2003.
- U.S. Congress. Senate. Committee on Energy and Natural Resources. Overview of Global Energy Security Issues," U.S. Government Printing Office. Washington D.C.: GPO, 2003.
- U.S. Congress. Senate. Committee on Energy and Natural Resources. The Prospects for Liquefied Natural Gas (LNG) in the United States and Safety and Security Issues Related to LNG Development. Hearing before Committee on Energy and Natural Resources, 109th Cong., 1st sess., February 15, 2005.
- U.S. Department of State. Bureau for International Narcotics and Law Enforcement Affairs. "International Narcotics Control Strategy Report-2003," Washington: 2003. Available from <http://www.state.gov/p/inl/rls/nrcrpt/2003/vol1/html/29826.htm>, Last accessed September 30, 2005.

- U.S. Department of State. "The Fiscal Year 2004 Performance Plan," U.S. G.P.O., Washington D.C., 2003. Publication Number 11042.
- Williams, Ewart S. "The State of the Trinidad and Tobago Economy," Address by Mr. Ewart S. Williams, Governor of the Central Bank of Trinidad and Tobago, at the Petroleum Conference 2005, Port of Spain, February 21, 2005. Available from <http://www.bis.org/review/r050401d.pdf>, Last accessed September 30, 2005.
- Wells, Jim. "Meeting Energy Demand in the 21st Century" Many Challenges and Key Questions," U.S. Congress. House. Committee on Government. Reform Sub Committee on Energy and Resources. Hearing before Committee on Energy and Natural Resources, 109th Cong., 1st sess., U.S. G.A.O., Washington D.C.: March 2005.
- Zernite, Peter. "Reluctant Recruits: The U.S. Military and the War on Drugs." Washington: Washington Office on Latin America. 1997.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A. ATTACKS ON THE IRAQI PETROLEUM INDUSTRY

Date	Incidents	Remarks
2003		
June	5 attacks on (oil/gas) pipeline	In Kirkuk, Al Dawrah & Bayji refinery, Abbidiyah Gaarbiga, and Hit. IEDs on pipelines
July	2 attacks on (oil /gas) pipeline	In Basra and Bayji. IEDs on pipelines
August	5 attacks on (oil/gas) pipeline	In Karbala, Bayji and Al Taji. IEDS and RPGS used.
September	2 attacks on (oil/gas) pipeline	Kirkuk, and Jabour. IEDS used
October	4 attacks on (oil/ gas) pipeline	Hadeetha, Mosul and North Baghdad. IEDs used.
November	4 attacks on (oil/gas) pipeline 1 attack on oil compound 2 attacks on personnel	Tikrit, Zumar, Mashruh al-Thertar, Kirkuk, Jambur and Sharqat. IEDS used. 3 expatriate workers killed. Mortar used. Iraqi Police Colonel Abdel Qanbar security chief: oil installations for Mosul killed. Oil distribution manager Mohamme al-Zibari shot and wounded. Vehicle attack/small arms used.
December	7 attacks on (oil/gas) pipeline. 1 attack on storage tank 1 attack on pump station	Baghdad, Al- Mashahda, Bayji and Kirkuk. IEDs and RPGs used. RPG used. RPG used.
2004		
January	2 attacks on (oil /gas) pipeline	Hassiba and Kirkuk/Bayji. IEDS used.
February	2 attacks on (oil /gas) pipeline	Kirkuk/Baghdad. IEDS used
March	3 pipeline (oil & gas) Explosions 2 Oil wells (rigs) attacked	Baghdad, Tikrit and Basra. IEDS used. First time rigs are targeted in Northern Iraq and Khabaz area. IEDS used
April	2 attacks on (oil /gas) pipeline 1* Suicide attack on refinery 1 Storage tank attack	Basra, Baghdad. IEDs used *Three suicide boats used. (unsuccessful) detonated and destroyed prior to reaching target by effective maritime domain awareness/security. Mortar Used.

Date	Incidents	Remarks
May	6 attacks on(oil/gas) pipeline 1 Attack on gas plant	Bagdhad, Basra, Kirkuk/Ceyhan and Musayyib. Attacks have the effect of halving Iraq's daily output for the month. IEDS used. Rocket attack on Daura oil refinery.
June	11 attacks on(oil/gas) pipeline 1 attack on personnel	Kirkuk/Ceyhan, Bayji, Zubeir/Faw, Latifiyah. June 16 attack on 42 inch pipeline feeding Basra refinery brings exports from Basra to a halt for weeks. IEDS used. Ghazi Talabani Chief of Security for Iraq's Northern Oil Company is killed. Vehicle attack
July	12 attacks on(oil/gas) pipeline 1 Sabotage attack 2 Foiled attacks 1 personnel attack	Musayyib, Taji, Safra, Thartar Lake, Samarra, Baghdad/Beji, al-Askari, Fatha. IEDS and mortars used. Al-Maqalai. Looters drill holes in pipeline and steal oil. July 17 bomb goes off prematurely killing perpetrator but not damaging pipeline. July 24 bomb goes off prematurely killing two perpetrators Northern Oil company security guard shot to death at checkpoint near pipeline.
August	25 attacks on (oil/gas) pipeline I facility invasion 1 attack on personnel 1 Foiled attack 1 attack on oil well	Al-Fathea, kirkuk, Kirkuk/Ceyhan, bayji power station, Basra, Mussayib, Bezergan/Amarah, Berjisiya, West Babylon, West Qorna, North Baghdad, Al Ragdha. IEDs and RPGs Iraqi Southern Oil company's headquarters in Basra infiltrated and a set fire by hundreds of attackers. Aug 18. Northern Oil company security officer killed and two others wounded near Kirkuk. Vehicle attack. Berjisiya, bomb found and defused on pipeline Amarah. RPGs fired at oil well
September	13 attacks on (oil/gas) pipeline.	Kirkuk Ceyhan, Al Kahbaz, Al- Fahhama, Rumalia

Date	Incidents	Remarks
October	11 attacks on (oil/gas) pipeline 1 attack on Oil Ministry 1 foiled attack	Karbala, West Baghdad, Bayji, Kirkuk, Mashahdeh and Hayice. IEDs used. Rockets used. Bomb on pipeline defused in Khana.
November	21 attacks on (oil/gas) pipeline 1 personnel attack 7 attacks on oil wells 1 attack on storage depot and pumping station 1 sabotage attack	Riyad, Bai Hassan, Kirkuk/Bayji, Hatin, Sheikh Mizher, Baba Gurgun, Safa, Khubbaz, Taji, Safra, Sarai, Basra, Fatha, Babil, Bayji/Daura. IEDs used. Oil Ministry official Hussein Ali al Fattal, killed outside his home in Yarmouk. Khabbaz & Himreen, gunfire and IEDs used. Ain al Jahish. Khabbaz
December	13 attacks on(oil/gas) pipeline 1 attack on Refinery 1 kidnapping 1 personnel attack	Kirkuk, Baghdad, Samara, Bayji/ Baghdad, Fatha, Berjisiya. IEDs used. Daura refinery, mortar used. Northern Oil Company's head of security while inspecting pipeline in Samarra. Insurgents open fire on repair team, no fatalities.
2005		
January	13 attacks on (oil/gas) pipeline 1 refinery attack 2 attacks on guard facilities	Kirkuk Bayji,Musayhab, North Tikrit, Safra, Fatha, Zeheitoun, and Sanmrra. IEDS and rockets used. Daura Two guard booths blown up. No fatalities.
February	12 attacks on (oil/gas) pipeline 1 personnel attack	Samarra, Bayji/Daura, Kirkuk/Bayji, Fatha, Dibis, and Bajwan. IEDs used. Colonel Ibrahim Ahmed is killed in Ajeel, he was head of pipeline security.
March	10 attacks on (oil/gas) pipeline	Al Safra, Kirkuk/Dibis, Samarra, Jofr al-Sakhr, Al Thartar, and Kirkuk Bayji. RPGs and IEDs used.
April	5 attacks on (oil/gas) pipeline 1 pump station attack	Riyad, Fatha, Kirkuk. 9 persons killed when bomb on pipeline went off while being defused: security chief killed in incident. Bay Hassam.

Date	Incidents	Remarks
May	6 attacks on (oil/gas) pipeline 1 attack oil Ministry 1 Fertilizer plant attacked 1 Foiled attack 1 suicide attack on pipeline 1 attack on a pumping station	Kirkuk, Dibiz, Baghdad and Bayji. IEDs used. Mortar used Basra: 1 person killed Bomb discovered planted near oil Ministry but defused. Kirkuk Athana. IED used.
June	9 attacks on (oil/gas) pipeline 1 sabotage attack	Kirkuk, Bayji, al- Fatah, Bayji/Daura, Yusifiyah, Baghdad. IEDS used. Valves opened to create an oil spill.
July	6 attacks on (oil/gas) pipeline 1 attack on railway line 1 attack on a refinery 1 personnel attack	Daura, Byji/Baghdad, Latifiyehin, Samarra, Kirkuk. IEDS, and roadsie bomb used. Baghdad, setting ablaze train with petroleum products. Daura refinery mortar used. Two guards killed by mortar fire near Bayji.
August	6 attacks on (oil/gas) pipeline. 2 personnel attacks 1 kidnapping 1 Sabotage attack on oil well 1 attack on the oil Ministry	North Baghdad, Kirkuk, Bayji/Baghdad. Gunmen kill two employees of the oil Ministry & Lt. Col. Mohammed, Rashad, Commander of pipeline protection unit, assassinated at home. 6 members of a repair crew kidnapped North of Baghdad. Oil well sabotaged. Mortar used.
September	6 attacks on (oil/gas) pipeline. 1 personnel attack 1 attack on oil tanker	Fatha, Bayji/Baghdad, Thiaa Thiaa, Kirkuk/Dibis, Kirkuk/Ceyhan, Daura/Latifya. IEDs used. Two policemen killed by roadside bomb intended for oil workers.

APPENDIX B. INTERNATIONAL ATTACKS ON ENERGY INFRASTRUCTURE (2000 TO 2005)

Date	Country	Event
01/29/00	Colombia	FARC bombed Cano Limon pipeline
02/03/00	Colombia	Putamayo bombed section of Cano Lima pipeline
02/08/00	Colombia	ONCESA pipeline bombed near Campo Hermosos
02/18/00	Nigeria	22 Chevron workers kidnapped including two foreign nationals
03/14/00	Nigeria	Armed youths occupy Shell Oil company and held 30 employees hostage
04/07/00	Nigeria	Armed militants kidnapped forty persons from Elf Aquitaine Oil Company
04/13/00	Colombia	Cano Limon oil pipeline bombed
04/14/00	Nigeria	Armed militants kidnap 19 employees of Noble Drilling Oil company
05/27/00	Indonesia	Armed militants occupy a Mobil Oil production plant
06/13/00	Nigeria	Armed youths stormed two oil drilling rigs, taking 165 hostages
10/12/00	Ecuador	Militants hijack crew helicopter and kidnap 10 oil workers
10/07/01	United States	A single bullet hole as a result of sabotage on the trans Alaska pipeline is discovered. This single act accounts for 260,000 gallons of spilt oil.
10/30/01	Sri Lanka	Tamil Tigers attack and set ablaze the oil tanker MV Silk Pride, killing three.
10/31/01	Vietnam	British petroleum office attacked by anthrax, the bio agent was wrapped in a lottery ticket. Several employees infected, no fatalities, no group claimed responsibility
04/11/02	Tunisia	In Djerba, militants explode gas truck killing 21
10/06/02	Yemen	French oil tanker Limburg attacked by suicide bombers in small boat. One fatality and 90,000 barrels of oil spilt
01/22/03	Colombia	ELN blow up portion of Cano Limon pipeline
02/06/03	Colombia	FARC blow up section of Cano Limon pipeline
03/02/03	Venezuela	A car bomb near Zulia state governor's office destroys part of U.S. oil company Chevron's office.
03/20/03	India	One person is killed when an oil tanker is bombed. No one claims responsibility
05/27/03	Colombia	Cano Limon oil pipeline bombed
05/30/03	Colombia	A section of oil pipeline in the Canlon district is bombed
06/09/03	Peru	Shining Path kidnap 71 workers from Technist Group working on a natural gas pipeline
07/10/03	Colombia	7,000 barrels of oil spilt in attack on Cano Limon pipeline
05/01/04	Saudi Arabia	Six expatriate workers killed in an attack on oil company facility.
05/29/04	Saudi Arabia	Al Khobar oil facility seized 22 expatriate workers killed in Saudi Special Forces rescue operation.
12/05/04	Nigeria	Approximately 300 armed villagers in Kula seize three oil flow stations.

Date	Country	Event
01/08/05	Pakistan	Baluch tribesmen attack Pakistan Petroleum Limited's Sui natural gas purification plant shutting it down and shutting in 45% of Pakistan's natural gas, causing shortages
03/08/05	Iran	A bomb explodes outside BP's main office in Tehran. (no injuries)
06/02/05	United States	Bomb placed inside a natural gas pipe on natural gas rig in Montgomery County Kansas kills two and injures a third. Bombing was carried by a U.S. national and listed as intentional by the U.S. Federal Bureau of Investigation
07/26/05	Somalia	An oil tanker is attacked 160 km from shore by armed pirates
2005		It has been estimated to date that between 50-70 employees of Royal Dutch Shell have been kidnapped in Nigeria at the time of writing

From: Compiled on 2005-06-13 from "Terrorism& Oil," Neal Adams, Tulsa. Pennwell: 2003, MAJOR TERRORIST INCIDENTS 1998-2004© Tim Ripley, 2004; & <http://www.jewishvirtuallibrary.org/jsource/Terrorism/chron03.html>, Last accessed November 20, 2005

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
Ft. Belvoir, Virginia
2. Dudley Knox Library
Naval Postgraduate School
Monterey, California
3. Brigadier Ancil Antoine
Chief of Defence Staff
Trinidad & Tobago Defence Force
Airways Road, Chaguaramas
Trinidad and Tobago, W.I.
Jamaica
4. Douglas Porch
Naval Postgraduate School
Monterey, California
5. Robert Mc Nab
Defense Resources Management Institute
Naval Postgraduate School
Monterey, California
9. Maria Rasmussen
Naval Postgraduate School
Monterey, California